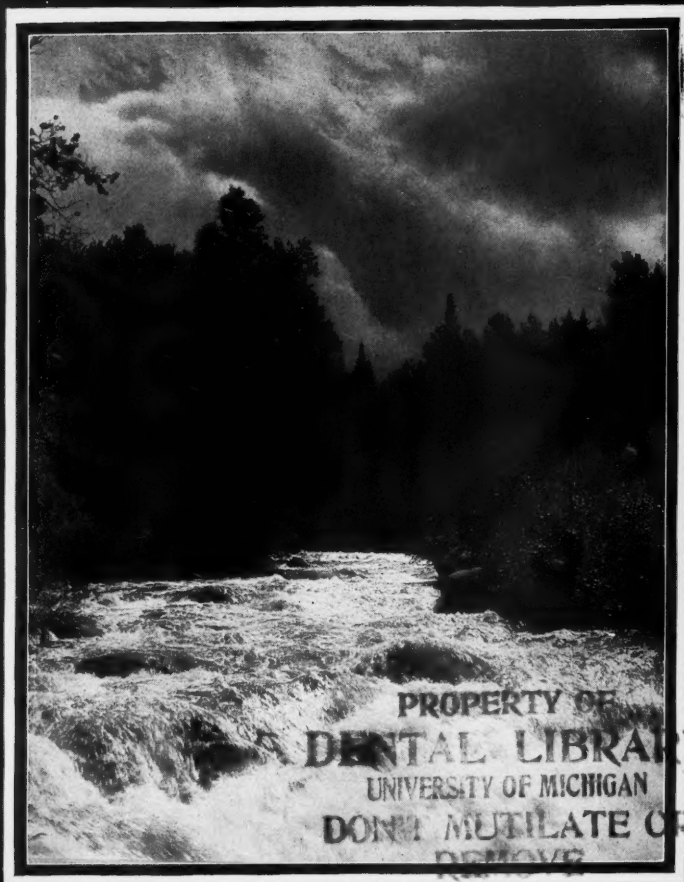


# THE DENTAL DIGEST



**NOVEMBER - 1925**

VOL. XXXI, NO. II

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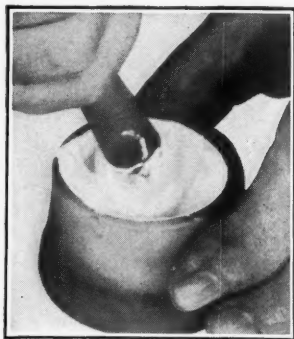
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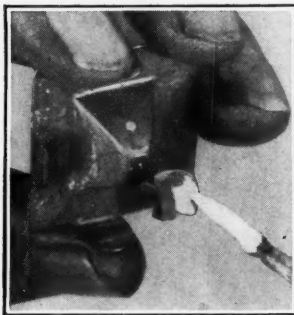
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*Triturating the first mix of inlay investment*



*Painting the inlay pattern with the first mix*

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# THE DENTAL DIGEST

GEORGE WOOD CLAPP, D.D.S., EDITOR

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## OUR COVER THIS MONTH

Our COVER PICTURE presents a pleasant and picturesque view in the celebrated White Mountains section of New Hampshire. This particular portion of the State abounds in deep valleys, romantic glens, waterfalls and lakes, nearly all of which are the result of glacial action in past ages. New Hampshire is one of the New England states that figured conspicuously in the early history of the Republic. Like some other sections it suffered from Indian depredations which retarded for many years the founding of safe settlements. But in the course of time it achieved a distinguished position in the constellation of states, and today its lakes, mountains and forests give a great portion of the State the appearance of a vast and beautiful park.

The tumbling stream in the forefront of the picture is a bit of the Pemigewasset River, which flows into the Winnepesaukee, forming the Merrimac River. Pemigewasset is full of speckled trout anxious to hop on your line any time you are in this vicinity for a day's sport. The name of this river, we assure you, has no detrimental effect on the splendid quality of the fish, but if you expect to tell fellow anglers where you caught your string, be careful of the quantity and quality of the "bait" you use.



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# THE DENTAL DIGEST

Vol. XXXI

NOVEMBER, 1925

No. 11

## Radiography

By Joel M. Zametkin, D.D.S., Brooklyn, N. Y.

You have carefully positioned the film packet against the patient's teeth. Indeed, you caution him again not to move film, head, tongue or supporting finger. In fact, you make a final plea for steadiness on his part, while you step back, time-switch in hand, finger on plunger, to throw in the current. What have you done? Taken a successful radiograph? Perhaps. Surely, however, you have plunged unwittingly into the realm of intricate physics and exact chemistry and involved mathematics—physics of light, of electricity, of magnetism, chemistry of photography, developing and printing, and the mathematics involved.

Put aside the exposed film for future development. Let us examine the x-ray machine. There in the wall is the electric outlet. Tap it, and all it will give is 110 volts, and direct at that! That's what the electrician said. It's too weak for radiography, yet possessing a potentiality of no mean nature. You plug in. You turn your time-switch. You press the plunger and then—35, 50, 75, 100, yes, indeed, 150 and 200 thousand volts are delivered to your tube, which will then, and then only, give off the much coveted x-ray, our second vision.

How does this come about? The transformer in the apparatus does this. The increase in voltage is entirely dependent upon the size of the transformer. This part of the machine is only a sublime repetition of the ordinary induction coil that one finds in the wiring system of the automobile, and has an analagous relation to the weak 110 volts that a pair of binoculars has to small objects—they both magnify but also limit, the transformer in amperage, the binoculars in the field of vision. To understand this clearly, let us study the transformer. This is composed of four parts: the core, a bundle of soft iron rods; the primary winding, a few turns of coarse wire on the core; the secondary winding, a great many turns of very fine wire wound about the primary; and the interrupter. In all instances each turn of wire is insulated from the other, as is also each layer, there being no electrical connection between the primary and the secondary. Yet when the 110 volts of 5 amperes are sent through the primary coil, the secondary will deliver a tremendous increase in voltage, but with a decided drop in amperage. It is well established that the core will be highly magnetized

when an electrical current is sent through the primary coil. The core develops a magnetic field about itself; so also does each turn of wire of the primary coil develop a magnetic field about itself. It is furthermore known that a coil of wire in a magnetic field will develop a faint electric current with the continuing and discontinuing—the make and the break—of the exciting electrical flow. The secondary coil, then, being in this highly magnetic field and also being of many thousand turns, will total a tremendous voltage. This is very simple to understand:

Voltage of secondary coil is to voltage of primary coil as turns of secondary coil is to turns of primary coil or:

$$v. s. c. : v. p. c. = t. s. c. : t. p. c.$$

$x : 110 = 1000 : 10$ . The product of the means of the proportion equals the product of the extremes, therefore,  $10x = 110 \text{ times } 1000$ , or  $x = 11,000$  volts for the secondary coil.

It is only a matter of substitution of figures in order to form an idea of the stupendous voltage, the pressure, the power to do work, the electro motor force that we may obtain, but, however, at the expense of the current flow. This is readily understood. The voltage times the amperage equals the wattage, therefore  $V \text{ times } A = W$  or  $110 \text{ volts times } 5 \text{ amperage} = 550 \text{ Watts}$ ; but fortunately the wattage of the service current and the wattage of the induced current are equal, that is:

$$110 \text{ times } 5 = 550$$

$$1100 \text{ times } X = 550 \text{ therefore}$$

$$X = \frac{550}{1100} = \frac{1}{2} \text{ amperage.}$$

And why fortunately? Because to obtain the x-ray, tremendous power is needed, but very little current. As with our binoculars, enlargement of a small area is wanted not the enlargement of a big field. It's the name of the boat we want—not the entire vessel and the surrounding ocean! The same is true with the weak 110 volts and the 5 amperes. We want great increase in voltage with little current.

The reader will pardon the following digression. It is quite important that we understand clearly a few terms. There seems to be some confusion and misconceptions of the meaning of voltage, electrical pressure, electro-motive-force and electrical current, current flow and amperage. The first three expressions are really synonymous and mean the power to do work, and those of the second set are also synonymous and mean the amount of this power at hand to do this work. Examples will make this clear. Examine the vulcanizer in full opera-

tion; the steam pressure rises to 85 pounds pressure per square inch. If this were released suddenly much damage would result, as we well know. We have within the vulcanizer pot high voltage, as it were, great pressure, tremendous electro-motive-force. But to prevent accident we let off the steam very slowly; that thin stream of steam can do no damage, the flow is slight, the current flow is small, the amperage is low. Take as another example the high pressure  $N_2O$  and  $O$  administrating machines for general anesthesia. The gas pressure in the gas tanks is about 1500 pounds per square inch; the pressure is very great indeed; its electrical force, so to speak, is extremely high; the voltage, electrically speaking, is tremendous. If released suddenly its great power to do work would end in terrible destruction, yet by interpolating a reducing valve, the flow, the current flow of gases to the patient's nose is in ounce pressure, in fact so gentle, that there is no strain—the amperage is very low. In the first instance, the vulcanizer and the tanks are demons of destruction if not controlled; in the second instance, the slight steam flow and gas flow is the adjusted flow which does work at our bidding. The same is true in the field of electricity. We can obtain tremendous pressure, very high voltage with ability to smash to smithereens; while on the other hand by setting reducing devices, we can let through this force so gradually that we light our homes with safety, toast our bread to a delightful crispness, warm baby's milk just right. The one is power to do work, electro-motive-force; the other is the quantity adjusted to our need. The first is measured in voltage; the second in amperage.

As we have seen above, the transformer will deliver high voltage but current of low amperage. However, the effect is as fleeting as it is tremendous. With the closing—making—of the current, the pressure in the secondary coil springs from zero to, let us say, 40,000 volts, and drops as quickly to zero. The same is true with the opening—breaking—of the current. In each instance a weak current has been set up, but flowing in opposite directions—that is, an alternating current has been induced. It follows then that the faster the make and break are made, the faster will the alternations be, and the greater the tendency to steadiness of amperage with the apparent effect that the current is flowing steadily. Since this is only an apparent effect, and since the x-ray tube will operate only on a direct current—one flowing all the time in one direction—it would seem that our induction coil were useless. It would be were we not able to change the alternating current to direct by interpolating a rectifying switch, which has the ability to let through impulses that travel in one direction. By the way, the “break” current—also known as the inverse current—is much stronger than the *make* current.

Taking into consideration that two types of commercial current are

supplied, the direct and the alternating, and realizing that a direct current of high voltage must be delivered to the negative terminal of the tube, it would here be advisable very rapidly to trace the circuit. The direct current of 110 volts is sent through a rotary converter which changes the direct to alternating. It then passes through the primary coil of the transformer which results in a very high voltage in the secondary coil of the transformer, but also alternating in character. The rectifying switch now changes the induced alternating current to direct by cutting out the weak current. With an alternating current supply, the rotary converter is omitted and passed directly into the primary coil of the transformer to repeat itself as in the first instance.

Before studying the tube phase of the discussion, let it be understood that there are many types of tubes in use, some of greater value than others, all, however, depending on high voltage, low amperage and

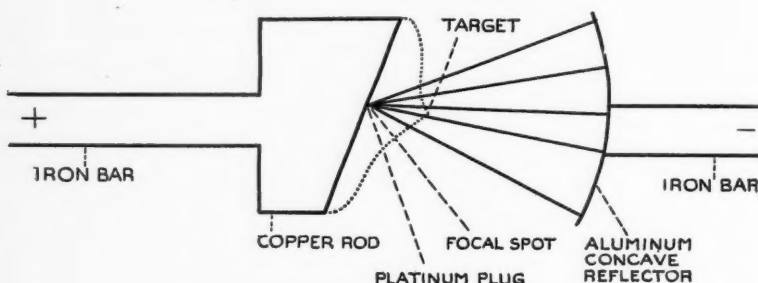


Fig. 1

a high degree of vacuum. The tube in greatest use today is the Coolidge tube and will be used as the model with which to develop this portion of the subject. The high voltage current of the secondary coil is sent into the negative terminal of the tube only to leap across a gap and strike the positive terminal where the x-rays are developed. At the end of the negative terminal, there is an aluminum disc concaved with a definite focal spot, the point at which all radii of the concavity meet. At the end of the positive terminal is a copper rod cut on an angle of 45 degrees, and whose center has a platinum plug. This plug coincides with the focal spot of the negative terminal. Fig. 1 is self-explanatory. The whole of this is enclosed in the familiar glass tube very highly evacuated of air, and both ends of which are hermetically sealed, each respective end permitting the passage of the negative wire and the positive wire. However, it must be remembered that in the x-ray tube, by far most popular, the Coolidge tube, there is a spiral of wire in the negative terminal which is of the utmost importance in the development of the x-ray. This coil is heated to incandescence by the 110 volts of

the commercial current. What then? You release the switch; contact is made; 110 volts are passed through the spiral; incandescence is developed, but simultaneous with this the current is also sent through the transformer, and a tremendous rise of voltage is produced at the negative end, that is, 45,000 volts pressure may be at the disposal of the heated spiral coil to create the x-ray; in fact, the x-ray, though invisible, is there. But how!

Beat your clinched fist into your open palm as rapidly as you can and as hard as you can with the shortest strokes possible, and your palm soon becomes warm; keep it up as long as you can and your palm will become still warmer. Slow down the action decidedly, make the strokes very long—and the palm becomes cool, cold, that is, normal. Beat a piece of metal with a hammer with hard, fast, very short blows and in no time the metal becomes warm, hot, very hot, cherry-red, white-hot, melts, flows! If only we could strike hard enough, fast enough, long enough and at the smallest possible range—the conclusion is infallible. We fail because we tire; the x-ray apparatus succeeds because it is tireless—within limits. Yet on the other hand we apologize profusely to our lady companion for having been so thoughtless as to have allowed our heavy smoke from our cigar to have annoyed her and we make further amends to milady by vigorously waving the smoke away from her. That's done in polite society it's said, and—pardon—the same is done in the most exacting scientific society of the x-ray tube. How? As the spiral coil in the negative terminal of the tube is heated to incandescence by the 110 volts, it gives off electrons, scattered in all directions like our irritating smoke, but the tremendous pressure of the 45,000 volts, generated by the transformer, travels from negative to positive and at terrific speed with extreme force and in one direction, being suddenly stopped at the platinum plug in the target where warmth, heat, great heat, tremendous heat is developed to the point of luminosity—invisible, it is true—but there, in the form of the x-ray. Recall the metal and hammer-head blows, see the point in the constant stream of cations in one direction, and the waving away of the smoke to save our lady the annoyance. The electrons are driven in one direction with great force with greater speed, against the target, to be suddenly stopped—result—x-rays.

*(To be continued)*



## Successful Root Canal Therapy

### A STERILIZING VAPOR TREATMENT IN CONNECTION WITH AN ALL-MINERAL FILLING MATERIAL

By John P. Carmichael, D.D.S., Milwaukee, Wis.

In dealing with apical infection many difficulties present themselves. While some progress has been made along this line, the basic fundamentals which insure success have not as yet been met. The attitude of the profession toward diseased pulp and apical infections has lately been more or less fatalistic. The reason for this lies in the fact that the accepted treatments are ineffectual, and the result is that a tooth showing even a slight trace of apical infection is usually extracted. This method of dealing with the offending tooth is resorted to, no doubt, because no method has been perfected which would control bacterial action following the root canal filling operation.

Treatments have been proposed which promised a solution of our problem, but they have failed. In analyzing them we find that they either are entirely empirical or are based on some assumed theory and developed by laboratory experiments. They have not stood the test of clinical experience. Laboratory experiments are not reliable because there is no way of reproducing physiological conditions. The action of chemicals on living tissue is peculiar and is subject to systemic reactions, which affect the results. Therefore extensive clinical experience is the most dependable proof of any root canal therapy.

The present status of root canal therapy is a development of a variety of methods used in the past, a large percentage of which have been failures because *the established apical infection was not first eradicated*. The cause of our difficulties lies in infection. Therefore treatment must eradicate all infection, whether it be in the root canal or in the encapsulating tissues.

The operator must be his own judge in deciding which tooth ought to be extracted. Physical conditions, the nature of the infective process, the age of the patient, the location of the tissue involvement and many other factors must be considered, as well as the importance of saving the particular tooth which the case may present.

I do not advise attempting to save teeth which we know to be a menace to health. I do hold, however, that clinical experience has furnished me with proof that it is possible, by proper treatment, not only to prevent apical disease following root operations but to arrest infective processes that have attacked the periodontal structures.

The difficulty in practically all root canal therapy is found at the

root apex, and the condition we are called upon to meet and combat is an infective process, whether it be incipient or chronic. Therefore the logical procedure would be first to attain sterility and then to seal within the root canal a substance which, by virtue of its properties, would maintain sterility, be agreeable to cell tissue and aid in the healing process. Thereby it will enable nature to restore a normal condition to the encapsulating structure without hindrance. This is what we are after.

An infected tooth usually presents one of three conditions: (1) an inflamed pulp; (2) a putrescent pulp with apical infection; (3) a chronic apical abscess. In the first case we have infection that has invaded the pulp tissue and that is invariably carried to the apical region. In the second stage we naturally have a degree of apical involvement, while in the chronic stage we have the disease advanced to a condition of apical osteitis.

In the case of a pulpless tooth we are dealing with an organ that has lost its principal life support within the tooth, and the infective process has passed on to the enveloping tissue. The treatment naturally requires medical agents which will reach and combat disease in the adjacent enveloping structure. Local agents which will combat infection must travel the road opened by that infection. By the same principle, sterilizing agents to be used must be of a kind that can be made to permeate not only throughout all necrotic tissue but also throughout the intercellular tissue that has become disorganized by the infective process, thus sterilizing the entire area involved.

In applying any liquid medication, only the point of contact is sterilized. Our difficulty is to eliminate the periapical infection, and that means that our treatment must be of such a nature that it will pass through the apical foramina. If we analyze carefully the requirements of successful root canal therapy, we find them to be essentially as follows:

#### REQUIREMENTS OF SUCCESSFUL ROOT CANAL THERAPY

##### A. Requirements of the sterilizing treatment.

1. As regards the root canal.
  - a. Must penetrate the tubuli and all ramifications of the canal as far as infection has progressed.
  - b. Must not coagulate albumen.
  - c. Must actually kill infectious organisms.
  - d. Must not injure normal tissue.
  - e. Must sterilize disorganized tooth structure.
2. As regards the periapical tissue.



- a. Must pass through all the foramina into the infected periapical tissue.
- b. Must kill infectious organisms in the periapical tissue.
- c. Must neutralize toxic gases.
- d. Must not cause irritation or other injury to periapical tissue.

B. Requirements of the permanent filling.

1. As regards the root canal.
  - a. The canal must be completely filled, therefore the filling material must mould itself to all irregularities, crevices, angles, etc., of the root channels.
  - b. Must possess a diffusible medication that will maintain an aseptic condition.
  - c. Must be capable of being packed into minute channels without forcing air in advance of it.
  - d. Must be readily removed if required.
  - e. Must serve as an agreeable surgical dressing to wounded tissue.
  - f. Must be opaque to the x-ray.
  - g. Must remain permanently in contact with canal walls.
2. As regards the periapical tissue.
  - a. Must be inductive to tissue regeneration.
  - b. Must evolve a diffusible antiseptic agent to maintain asepsis of the periapical area until such time as nature restores the encapsulating structures.
  - c. Must remain permanently on guard to ward off any re-infection.

These requirements have all been fulfilled by the method of treatment which will now be described, a method which sterilizes the root canal, the dentine and the periapical tissue, and at the same sitting fills the canal with a permanent material which prevents reinfection by diffusion of antiseptic vapor in the presence of bacterial action.

I have found that a volatile antiseptic compound can be introduced into the pulp chamber and so highly volatilized by the application of a vaporizing instrument that the disinfecting vapor will be driven directly through the apical foramina into the periapical tissues and completely sterilize the infected tissues. This is accomplished without harmful irritation or ill effects to the living tissues.

This volatile antiseptic is a solution of formaldehyde so modified by treatment with eucalyptol, thymol, and other antiseptic oils in a menstruum containing glycerine and alcohol that the irritating properties are eliminated and the antiseptic power increased. I have been

using this in my practice for more than fifteen years and have never had a case of irritation or other injurious effect follow its use.

The canal is flooded with this solution. The vaporizing instrument is heated and quickly seated into the canal, the shape of the instrument preventing backflow of the resulting vapor. The heat thus applied volatilizes these agents and forces the antiseptic vapor throughout the entire root canal into all infected dentine and through the various foramina, completely permeating the surrounding periapical tissue. This procedure is repeated several times at one sitting, according to the needs of the case, without danger of overtreatment. This sterilization accomplished, the root is filled at the same sitting, the sterile condition being thereby maintained and no reinfection permitted.

Sterility in advance of the operation is most important and it is effected through the use of this same vaporizing fluid. The disinfectants used are sufficiently active, even in liquid form, to sterilize thoroughly the cavity and the pulp chamber, and all danger of mechanically forcing infection in advance of the operation is eliminated. The fluid's presence will render inactive all bacteria within the canal. This is the paramount consideration, as my experience has convinced me that any infective reaction with which we have to deal in the apical area is due to the action of the established bacteria rather than to any invading organisms. Even granting that such infection could come from outside sources, it would be impossible for it to penetrate the defense set up by a single application of this treatment.

By means, then, of this sterilizing vapor we have succeeded in arresting infective processes which were active not only in the tooth itself but also in the investing tissues. A greater and more difficult problem is to maintain this accomplished sterility.

If we but concentrate upon the one localized spot which is accountable for all our failures in root canal therapy, we find it at the apical foramina. To overcome this difficulty, an entirely new departure in technic and material used is necessary. It is important to note that at this point we may be dealing with two separate and distinct pathological conditions, either wounded pulp tissue or necrotic tissue. In either situation the apex must be filled with a material which is agreeable to nature's healing processes and must also conform to the requirements of a perfect root-filling material, as has been outlined above.

This matter has absorbed my interest for many years and has led me into investigation of numerous root-filling materials. The well-known properties of iodoform early recommended it for this purpose. I also conceived the idea that in mineral wax we should have an ideal filling material which would not be subject to physiological or physical changes. The problem presented was how to combine these into a workable combination with a suitable root-filling point which would

not be subject to physical changes. Gutta-percha and modifications thereof were manifestly not suitable. The ideal material was ultimately found in a medicated mineral wax point reinforced by asbestos fiber. The mineral wax is very hard and is especially treated to have a high melting point. The natural asbestos fiber is treated with barium sulphate to make the point radiopassic, i. e., opaque to the x-ray, and is then coated with the mineral wax and made into the filling point. The medicated wax is the same as is used for the filling material, which is described later.

Thus the elements of the filling material are as follows: a base of medicated mineral wax rendered radiopassic, unaffected by chemical or physiological changes, capable of diffusing a reliable antiseptic (iodine) in the presence of infective processes, thereby maintaining sterility and serving as a sedative surgical dressing to wounded tissue. This is the material depended upon to fill the tooth canals and keep them aseptic. The medicated-wax-asbestos-reinforced points serve the purpose of forcing the filling material throughout all the ramifications of the canals, packing and spreading this material into a tight plug to the tubuli and foramina, thus forming a solid, impervious, non-shrinking filling of the root canal.

The filling material is a compound of mineral wax, especially treated to have a high melting point, into which iodoform is incorporated and ground to the consistence of a granulated powder and mixed with barium sulphate, zinc oxide, aromatics and antiseptic oils with a base of hard paraffin. When used, this is mixed with a menstruum of eugenol, thymol and chloroform, forming a plastic, easily manipulated mass. While in this state, it is readily carried into the root channels as far as the apex, completely filling them without forcing air in advance of the material. Any excess liquid is absorbed during this process, the mass quickly hardening to the original density of the medicated wax, its permanent form. Then the root canal points serve as cores and packers to spread the paste in all directions, forming a homogeneous, compact medicated dressing to all surfaces of the root channels.

It is important to note that, unlike anything having the nature of a cement, which imprisons air within the canal and therefore defeats the purpose of the filling operation, the physical properties of this material are of such a character as to permit the release of the air while it is being packed and therefore assure complete filling of even the most minute channels.

The completed operation provides a tight filling for the canals of an all-mineral character, free from chemical action, decomposition or other physiological or physical changes.

Permanent asepsis is assured by the fact that the medication in this filling material will evolve iodine in the presence of recurring bacterial activity.

The asbestos-reinforced canal point, which serves as a resistance to the plugger, will readily attach itself to a nerve broach, thus securing the removal of the filling en masse, should such a step be necessary.

As is seen, we have in this combination not only an agreeable surgical dressing for wounded tissue, but one which immediately provides an effective filling in either a wet or a dry state. This is a paramount consideration. It is probable that no root canal can ever be made perfectly dry at the apex prior to the filling operation. This material does not depend upon an absolutely dry state anywhere in the canal. It is perfectly manipulated and develops the desired permanent density even in the presence of moisture. It maintains close contact with all surfaces without adhering to the canal walls. This permits a ready diffusion of the antiseptic vapor in the presence of bacterial action, thereby maintaining an aseptic condition throughout the dental tubuli as well as the foramina. This eliminates the bad practice of re-treating, which is so frequently the cause of reinfection.

While, as I said at the beginning, extensive clinical experience is the most dependable proof of any root canal therapy, nevertheless laboratory experiments have their place in determining the properties of the materials used. Therefore, extensive laboratory tests have been carried out concurrently with the development of this treatment. So far as laboratory conditions could be made to approximate physiological conditions, the experiments have proved the remarkable penetrating and sterilizing properties of the volatilized antiseptic, the permanency of the root-filling material and its ability to maintain an aseptic condition in the tooth over long periods of time, even in the presence of constant bacterial activity in the surrounding media.

Furthermore, several years of clinical experience in the hands of other practitioners, with equally good results, encourage me in the belief that in this radical, new departure in root canal therapy we are now able successfully to cope with a condition that has baffled the dental practitioner in the past and which concerns the most important operations in dental practice when considered in the light of dentistry's service to humanity.

615-616 Wells Building.



## The Principles and Practice of Administering Nitrous Oxide-Oxygen and Ethylene-Oxygen\*

(Tenth Article)

### CHILDREN AS PATIENTS

It is often difficult to use local anesthetics successfully in extractions for children and it is highly desirable that children should not be given impressions which will make them bad dental patients for the remainder of their lives. Children may be successfully anesthetized with nitrous oxide and oxygen by any anesthetist who understands their limitations and behavior and is willing to take the necessary trouble. In many cases the anesthesia will not be quiet in the sense that it is for normal adult patients, but the operation will be painless and the experience, taken as a whole, will be satisfactory to the child.

Children present two types of difficulties, one psychological, the other physiological. Often the resistance they manifest is the result of fear. Sometimes they can be talked out of this; sometimes they must be restrained until conscious control is lost under the action of the anesthetic.

The physiological difficulty lies in the fact that the metabolic rate is high between the ages of four and fourteen, and the higher the metabolic rate, the narrower the anesthesia range. The metabolic rate is low at birth. It rises rapidly and reaches its peak about the fifth year. The rate then gradually drops to the eightieth year, when it is back to where it was at birth. This explains why very young children and very old people are good subjects for an anesthetic, because they have a wide anesthesia range, and induction and maintenance are comparatively easy.

Many children submit quietly to the anesthetic and these present only the physiological difficulty resulting from the high metabolic rate. The psychological attitude of children, when they arrive at the office, will depend in very large part upon the attitude of the parents beforehand, and somewhat upon the attitude of the dentist and his assistants.

The most difficult children are those about the age of five years in whom the pulse rate and metabolic rate are increased by fear and where there is a temperature resulting from an abscessed tooth which must be removed.

When a child persists in resistance, the course most likely to be successful is for the dentist to say to the parents, "If you will leave the child with me, I will give him the anesthetic and I assure you he will

\*This series of papers is based on a clinic given before the Florida Dental Anesthetists' Society at Orlando, Florida, December 17, 1924, by J. A. Heidbrink, D.D.S., Minneapolis, Minn.

not be hurt." It is essential that parents be rigidly excluded from the operating room after induction begins.

For such cases everything must be made ready in advance and the administration of the anesthetic should begin immediately. To permit this, the dentist should place the child in the chair, grasp the child's wrists and hold them down against the child's thighs. The anesthetist or assistant should hold the child's head back in the headrest and adjust the nasal inhaler. If it has been possible to persuade the child to submit to the placing of the proper mouth prop, much will have been gained.

If struggling persists, it is often helpful to talk reassuringly to the child, using such expressions as, "This (referring to the gas and inhaler) will not hurt you. It does not smell bad. All you have to do is to go to sleep and you will not be hurt a bit." Very often, under the influence of such suggestions, children will relax and submit when they see that there is nothing painful or disagreeable about the induction.

The induction is begun for children in the same manner as for adults. Voluntary control will be lost at the end of the first minute or soon after.

When the child does not submit to the placing of the prop at the beginning, the mouth should be pried open and the prop placed after voluntary control is lost and before surgical anesthesia is reached. Means for prying the mouth open must be provided in advance. A wooden wedge made for the purpose may be used, but better results are likely to be obtained by the use of a mouth pry having two thin beaks and a handle for separating them by pressure, and a mouth gag of the usual type. Both of these are obtainable at surgical and dental supply houses.

The beaks of the mouth pry are inserted between the upper and lower teeth on the side of the mouth opposite the place where the extraction is to occur. Gradual pressure on the handles of the mouth pry will cause gradual relaxation of the muscles. When the teeth are sufficiently separated, the mouth gag is inserted on the other side and by means of these two appliances gradual pressure is maintained on both sides of the mouth until the mouth is opened enough to receive the prop selected for the case. The mouth should be held open by the gag, the pry removed and the prop placed.

The mouth should now be recovered with the mouth cover and induction completed with pure nitrous oxide. The oxygen is then given at the rate of 7%, which suffices for most cases, during the carrying period. In a few cases the symptoms will indicate an increase in oxygen up to 10%, and in rare cases up to 20%.

It is advisable to use the strap for many children for reasons which will presently appear, but it should not be placed while the child is sufficiently conscious so that it may cause fear.

If patients are to be kept in quiet anesthesia, they must present a fairly wide anesthesia range. In proportion as that range narrows, the difficulty of maintaining quiet anesthesia increases until, when the range becomes very narrow, quiet anesthesia is impossible, but there may be an unquiet anesthesia in which operations may be performed without the patient knowing, feeling or remembering.

Because the anesthesia range in many children is narrow, all children cannot be carried into a quiet anesthesia without bringing on signs of a lack of oxygen. One of the first signs of the lack of oxygen is bridging, in which the child supports the body on the head and heels and bows the back upward. Many anesthetists have been unduly alarmed by bridging. The anesthetist may immediately remove the cause by giving a breath or two of oxygen or air. The principal inconvenience from bridging is a tendency of the child to slide out of the chair.

Provided the child has permitted the anesthetist to carry out his routine technic, surgical anesthesia may be expected in from ten to thirty-five seconds after the end of the first minute, depending upon the age and size of the child. The symptoms of surgical anesthesia are usually more pronounced in children than in normal adults and possibly develop more rapidly. For instance, the period during which oscillation of the eyeball occurs may be very short and it may not be observed. The symptoms of the establishment of the operative stage of anesthesia are as follows: the lid reflexes are abolished, the eyeballs are fixed off center and the breathing is rhythmic. Most children show more color changes than do normal adults, but as with adults the color changes should not be regarded as reliable guides to the plane of anesthesia.

The longer the anesthesia is maintained, the more tolerance for the anesthetic the child develops and the easier it is to carry him. When the operation must be prolonged, as when several deciduous roots must be carefully removed, it may be necessary to increase the percentage of oxygen, sometimes up to 20%.

With a good technic, and with a knowledge of the limitations and characteristic symptoms in children, anesthetists will find nitrous oxide-oxygen a safe and satisfactory anesthetic.

#### ETHYLENE FOR CHILDREN

Ethylene is a more powerful anesthetic than nitrous oxide, and a given quantity in the nerve cells produces a deeper anesthesia.

This is equivalent to widening the anesthesia range. For this reason it may be possible to produce a quiet anesthesia in children, where the metabolic rate and the oxygen requirement are high, when such an anesthesia could not be produced with nitrous oxide-oxygen.



Children are more easily carried in quiet anesthesia with ethylene than with nitrous oxide.

During the induction, 85% ethylene and 15% oxygen are given continuously in a volume of two gallons per minute until the desired plane of anesthesia is reached, usually between one minute ten seconds and one minute thirty seconds, depending upon the age and size of the child. When the desired plane of anesthesia is reached, the percentage of oxygen is increased to 20% and this is given continuously during the carrying period. In some cases, as in persistent mouth-breathers, it may be necessary to reduce the percentage of oxygen, while in other cases it may be necessary to increase the oxygen up to 25%.

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## False Teeth Made of Wood

THIS JUST GOES TO SHOW WHAT CAN BE DONE.

WHAT NEXT?

John Papritski of Springfield, Ill., refused to pay \$35 for a set of false teeth and whittled himself a set of chewers from a hickory log.

John said it took him eight months to make the set, using a pocket knife and a piece of glass. John is rather proud of his handiwork. He says they do a fine job of masticating.



## Post-Revolutionary Dental Announcements

By H. H. Manchester, New York, N. Y.

Immediately after the Revolution dentistry took a sudden spurt in the United States. This was due in part to the opportunities supposed to be offered by a new independent country and, in part, to the entrance of several dentists from abroad.

As early as 1783 Isaac Greenwood, Junior, who had learned ivory turning and something of dentistry from his father in Boston, came to New York and advertised in the *Rivington Gazette* on December 24th.

*White Teeth a great ornament.*

**John Greenwood,**

DENTIST, No. 199, Water-street,

**E**NCOURAGED by the success of his practice, begs leave to acquaint the public, that he preserves the teeth and gums, by removing an infectious tartar, that destroys them, and renders the natural purity of the breath offensive; cures the scurvy in the gums; fastens the teeth by causing the gums to adhere to them; he cleanses the teeth, makes them white; substitutes artificial teeth in so neat a manner as not to be perceived from the natural; they give a youthful air to the countenance, and render the pronunciation more agreeable and distinct; in a word both natural and artificial are of such real service as are worthy the attention of every one. Those who may incline to employ him, their favours will be gratefully acknowledged; such as desire his personal attendance will be waited on by leaving their names and places abode.

Feb. 27. tu f t f

Fig. 1. John Greenwood's notice, February 28, 1786, in the *N. Y. Daily Advertiser*

In 1785 he went to Charleston, South Carolina, but soon returned North. Most of the years until 1810 he was in Providence, R. I., at which time he removed to New York.

John Greenwood, the second son of Isaac Greenwood, Senior, was born in Boston on May 17, 1760, and at thirteen was apprenticed to his uncle, who was a cabinet maker in Portland, Maine. John was a fifer in his uncle's militia regiment, and in May, 1775, he went to Boston to become a fifer in the Revolutionary Army. While on his

way to visit his aunt, something impelled him to return and he got back just in time for the Battle of Bunker Hill.

He was under Benedict Arnold on the march to Montreal and made his way with the remnant of the army back to Ticonderoga. His enlistment expired after the Battle of Trenton, and he returned to Boston and became a privateersman until the close of the war.

Soon afterward he came to New York and established himself as a dentist. One of his first advertisements there was in the *New York Daily Advertiser*, February 28, 1786. (Fig.1.) In this he states that he was encouraged by the success of his practice, thus implying that he had been there for some little time.

**Mr. CLABEAU,**  
**SURGEON DENTIST,**

**B**EGS leave to inform the Ladies and Gentlemen, that he cures every disorder incident to the mouth, repairs its defects, fixes, obviates, artificial palates, both artificial and natural teeth, with the greatest facility and in the most solid manner, which gives a great ease of speech and a youthful air. The utility of the teeth and the little care that is taken to preserve them is remarkable. The origin and formation of the teeth is the work of nature; but their preservation depends generally on the assistance of an experienced dentist. Though none of our members are of more utility, yet they are most neglected; while nothing is more agreeable than cleanliness and principally that of the mouth. It is well known uncleanliness destroys them, and gives a disagreeable breath. On the other hand, the beauty of a fine set of teeth, when taken good care of, with the good effect of making the breath sweet and agreeable must have met every ones observation; all which may be attained with a little trouble, every morning in cleaning them with proper remedies, and a little milk warm water, which I recommend. In the mean time it will be necessary for persons who have scales on their teeth, to have them cleaned by an experienced Dentist. The following are the proper remedies for cleaning, whitening and preserving them, viz.

A box of Tooth Powder,	-	£. 0 5
A pot of Dentifrice Opiale,	-	5
A pot of Dentifrice Antiseptic Opiale,	2s	
Sovereign water for the above use,	price,	1s
venting many disorders in the mouth,		
Dragon Root, a piece,	-	2 6
New invented Tooth Brush,	-	2 6
A vial, with a composition for easing the		7 6
Tooth Ach,		

N. B. Every operation performed on the most reasonable terms, and teeth drawn gratis for the poor, at his apartment, next door but one to the Coffee-House in Market-street.  
Philad. Feb. 29. ||

Fig. 2. Mr. Clabeau's notice in the *Penna. Journal*, March 20, 1784

He headed his "ad," *White Teeth a great ornament*, and spoke particularly of the influence of artificial teeth in giving a "youthful air to the countenance" and "rendering the pronunciation more agreeable and distinct." He either received customers at his office or waited on them at their homes.

On January 6, 1795, General Washington wrote him a complimentary letter in regard to a set of artificial teeth, but as this letter has been several times published, we need not reproduce it here.

A dentist of that period about whom we know almost nothing is Mr. Clabeau, who advertised in the *Pennsylvania Journal* in February and March, 1784. (Fig.2.) His advertisement of March 20th, which had

been running occasionally since February 20th, gave no indication whence he came or where he got his training. He states that he fixed "artificial palates" and both artificial and natural teeth and gives a strong talk on the necessity of preserving the teeth. He speaks of their influence on health and beauty, as well as on the breath, and the necessity of keeping them clean.

The "ad" mentions several tooth preparations with their prices. A box of tooth powder was priced at five shillings, and an antiscorbutic opiate at twelve shillings, while a newly invented toothbrush was two and one-half shillings. These prices were probably in the reduced currency of the time. He stated that all operations would be performed on most reasonable terms, and teeth would be drawn free for the poor.

The two best-known of the dentists who came in with the French

**Mr. G A R D E T T E,**  
*Surgeon-Dentist lately from Paris,*

**B**EING desirous to inform the Ladies and Gentlemen, that he makes artificial teeth (which imitate the natural) from a single tooth to a whole set, and places them, without the least pain, so regular, that it is impossible to distinguish them from the natural ones, and in such a manner, that the persons may take them out and fix them again themselves with the greatest ease; he can place them over stumps, if the person don't think to have them drawn. He also takes the scales or tartar from the teeth without pain, and renders them (by the help of a powder that he composes) as clean and as white as ever.

As he proposes to settle in this city, and to perform on very reasonable and moderate terms, he hopes to recommend himself to the notice and confidence of such as have occasion for his assistance, and wishes for an opportunity to make himself as extensively useful in his profession, as he flatters himself his abilities enable him to exert.

He may be spoken with at the east-side of Front-street, half way between Race and Vine-streets, where the Wax-Work is kept.

N. B. And if any Lady or Gentleman wishes to have him come to their houses, he will be ready to wait on them on the shortest notice.

Fig. 3. Dr. Gardette's announcement, *Penna. Journal*, July 28, 1784

army were Doctor Jacques (or James) Gardette and Doctor Le Mayeur.

Gardette was born in France in 1756, studied medicine, spent two years in the French hospitals, and became a surgeon in the French army. He came to the United States with Rochambeau in 1778, and while the army was near Providence, he did some dental work for the officers. There he seems to have known Dr. Le Mayeur, who was also a surgeon in the French forces. Incidentally, in 1781 they taught Josiah Flagg something of the art.

After the war was over Gardette went to New York in 1783 and, according to his own statement, arrived in Philadelphia in June, 1784, and began to practise his profession. On July 28, 1784, he inserted a small advertisement in the *Pennsylvania Journal*, stating that he was lately from Paris. (Fig. 3.) He remained in Philadelphia some forty-

five years, becoming the best known of the dentists there. At the end of that period he returned to France, where he died.

Dr. Le Mayeur, who was with the French forces at Providence at the same time as Gardette, was probably a military surgeon. Soon after the war he went to New York and began practice as a surgeon dentist, soon making a specialty of transplanting teeth. From New York he went to Philadelphia, but on March 10, 1784, he advertised in the *Independent Journal* that he would return to New York in May. From that time on he seems to have been busy in both cities until the end of 1786.

On December 18, 1784, he inserted the following "ad" in the *Independent Journal* in New York: "Dr. Le Mayeur, Dentist, intends returning to this City, from Philadelphia, about Christmas, and may be spoke with at his house, No. 49, Wall Street." (Fig. 4.)

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**D**R. LE MAYEUR, DENTIST, intends returning to this City, from Philadelphia, about Christmas, and may be spoke with at his house, No. 49, Wall-Street.

Dr. le Mayeur, has transplanted one hundred and twenty-three Teeth since last June, and assures the Public, that not one of his operations has failed of the wished for success.

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Fig. 4. Dr. Le Mayeur's statement concerning his transplantations in the *Independent Journal*, N. Y., December 18, 1784

"Dr. Le Mayeur has transplanted one hundred and twenty-three Teeth since last June, and assures the Public, that not one of his operations has failed of the wished-for success."

Lest this be taken as too strong evidence of the successful transplanting of teeth, we must put beside it a statement made by Dr. James Gardette, in 1827, in the *American Medical Recorder*: "Mr. Le Mayeur, with the reputation of an eminent dentist had transplanted 170 teeth in this city, in the course of the winter of 1785-6, as he told me himself at Baltimore, in the fall of the last mentioned year. . . . 'Of all these transplanted, not one succeeded.'"

Le Mayeur again advertised in New York on September 28, 1786, but his subsequent history is uncertain. It has long been customary to identify him with the Joseph Le Maire who later practised in Paris and published several books there. The name is essentially the same, but Joseph Le Maire seems to have been altogether too young, and it

is not known that his father, who was also a surgeon dentist, ever visited America.

A dentist of that time about whom practically nothing is known was J. Browne, Number 6 Nassau Street, New York, who advertised in the *Independent Journal* of September 29, 1784, that he would pay two guineas apiece for front teeth. (Fig. 5.)

**W A N T E D.**  
**F** R O N T T E E T H, for which  
 Two Guineas a piece will be given,  
 by J. BROWNE, Surgeon and Dentist,  
 No. 6, Nassau-Street.  
*New-York, Sept. 29, 1784.* 87

Fig. 5. An ad of a practically unknown dentist in the *Independent Journal*, N. Y., September 29, 1784

Another dentist of the post-Revolutionary period was Dr. Spence, who advertised himself as from London in the *Boston Gazette* of October 31, 1785. (Fig. 6.) He performed several operations relating to the teeth, including cleansing, extracting, pivoting, etc.

On October 13, 1786, Mr. Ruspini, the son of Ruspini, the surgeon dentist of Pall Mall, announced his arrival in New York and the opening of an office at Hanover Square. That same year Dr. Hornby advertised, on December 15th, that he had practised in Europe for twenty years and was to be found at 66 Cherry Street, New York.

*Mr. Spence,*  
**Dentist from London,**  
 Begs leave to inform the Public,  
 That he is arrived in Boston and performs  
 every operation relating to the TEETH, such  
 as Cleansing, Extracting, Pivoting, &c. &c.  
 in the most approved manner, and accord-  
 ing to the latest Discoveries.  
 N. B. Mr. SPENCE may be spoke with  
 at Mrs. QUINCY's, in Pudding-Lane, from  
 Seven to Twelve in the Forenoon. Written  
 messages will be punctually attended to.

Fig. 6. Dr. Spence's notice in the *Boston Gazette*, October 31, 1785

Most of these dentists practised here for only a short time so far as known, but the Greenwoods and Gardette were permanent, as well as the son of Robert Wooffendale mentioned in a previous article.

A dentist who practised here most of his life was Josiah Flagg. At eighteen he entered the Continental Army, where his father, also named Josiah, was an officer. In the winter of 1781-1782 he learned something of dentistry from Gardette and Le Mayeur, who were with the French troops, as already mentioned. As soon as the war was over, Flagg returned to Boston and began practising dentistry in Massachusetts. His first "ad" seems to have been issued in 1785. Some of his subsequent advertisements are of a good deal of interest, as well as length.

**Josiah Flagg,**  
**SURGEON DENTIST,**  
**INFORMS the Public, that he practises** in all the branches, with improvement, & transplants both live and dead Teeth with great convenience, and gives the pain in an instant, & is fitted in Europe or America. **Sees up** Here Lips—raises Ulcers—extracts Teeth and Stumps or Roots, with ease—restores Teeth and Gums, that are much depreciated by nature, consumption, acids, or corroding medicine; follows those teeth that are loose; (which he waits at the roots) regulates teeth from their first cutting, to prevent pain and fever in children; affixes nature, in the extraction of the Jaw, for a beautiful arrangement of a second set of teeth, and preserves them in their natural whiteness, entirely free from all feebly complaints.—When thus put in order, and his directions pursued, (which are simple) he engages, that the former care of a dentist will be wholly unnecessary.—Excess pains in teeth, without drawing, & stop bleeding in the gums, jaws or nerves; loose and plumb teeth with virgin gold, foil or lead; fixes gold roofs, and plates, and artificial teeth of any quality, without injury to, or independent of the natural ones, greatly assisting the pronunciation and swallow, when injured by natural or other defects.

**A room for the practice, with every accommodation** in at his house, where may be had Dentist's Instruments, teeth and gum Brasses, Malles, &c. warranted, approved and adapted to the various ages and circumstances. **Also,** Chew-sticks, particularly useful in cleansing the teeth and preserving a natural and beautiful whiteness; which medicine and chew sticks are to be sold by wholesale and retail, that they may be more extensively useful.

**Dr FLAGG,** has a method to furnish the ladies and gentlemen or children with set false teeth, gold gums, roofs or palates, that are at a distance of cannot attend him personally.

**For Cash given for handsome and healthy live TEETH.**

**For the high encouragement and confidence** reposed by the numerous and respectable persons of Dr FLAGG, he would render his thankfulness acknowledgments.

**For candour and liberality** manifested towards him in general have been such, as to operate as a forcible inducement to consider himself as a citizen. Fattered by such attentions, he hopes to deserve them; and only wishes a continuance of their suffrage, but by meriting them.

**He is sorry thus publicly to observe,** that some illiberal and unjust assertions have been propagated, to blast the minds of the public, and give a false encouragement to his professional reputation. These good natured people have even remarked in far as to say, that undue advantage has been taken of those who have applied for his assistance, by extorting from them, a sum beyond the bounds of their expectation:—

**To confute any of the like slander** in future, he declares that if he can may be always known previous to his operating, and the person at free liberty to employ him or leave him off elsewhere.

**As the summer is advancing,** and the seeds of both green and ripe fruit grow detrimental to such Teeth as are set alive, he would recommend particular attention, in due season, especially to the front teeth, together with such bumps as remain in front. To prevent a further decay is easily prevented, except two thirds of the enamel be destroyed—every touch of his practice is accomplished with the greatest facility and ease.

**Any one calling at No 47, Sudbury Street,** will find every accommodation agreeable to what has been represented in the Hand-bills and notice publications, of **JOSEPH FLAGG.**  
*Boston, June 4.*

Fig. 7. A late ad of Josiah Flagg in the *Columbian Centinel*, June 4, 1796

In one advertisement in the *Columbian Centinel*, June 4, 1796 (Fig. 7), he says that he "transplants both live and dead teeth and lines and plumb teeth with virgin gold, fixed gold roofs and palates and artificial teeth of any quality." He also had a method of "furnishing artificial teeth, gold gums, roofs or palates to persons who could not attend him personally."

342 West 85th St.





## Togo's "Discursions"

*Mr. Editor of Dental Magazine Requiring Considerable Digestion:*

*Hon. Sir:*

Thought evaporations occurring during recently elapsed month have reduced dangerous pressures in cerebral attic; therefore questions requiring calmness of thought will be unpacked and examined with care & verbal gymnastics.

Subject showing remarkable resiliency & recuperative power during recent years is question of "When does a Dentist cease to be one without encountering major tragedies of Death, Retirement or Disability?" Answer, "When he attempts tooth fixing activities in adjoining State of fractionally free U. S. A."

This are condition extremely puzzling to Oriental Brains equipped only with low magnifying powers. Toothsome disorders Mr. Editor are same over entire Universe including even Heavenly Suburb called California! Why then is man qualified & licensed to deliver Dentistry in other States obliged to deliver only milk or good advice when removing to vicinity of Golden Gate? Answer to foregoing is supposed to be concealed in statement that Climate exists to such remarkable extent in California that all members of somewhat Human Race which including most Dentists desire residence in Hollywood atmosphere whenever possible.

Results of such exotic migratory intentions would be to produce oversupply of middle aged & elderly moss backed variety of part time tooth tinkers whose presence in Climatic Paradise would tend to ruin market for all dentists of Native Son brand already existing on the spot & at present in close contact with Soft Snap composed largely of elderly invaders in search of Health and having considerable cash balances more or less combined with intake and exhaust mechanisms in need of extensive improvements.

Reasons just elucidated Mr. Editor are perhaps excellent from standpoint of Native Sons now holding up the slogan of Better Dentistry & the Public, but question arising in several minds is "Are interests of Native Sons in all cases to be considered prior to interests of Paying Public?" All answers will be carefully considered which show presence of sufficient intelligence & absence of selfish interest.

American is peculiar citizen, Mr. Editor. Living completely surrounded by most glorious country & gluttonous prosperity on all sides he spends large percentage of energy hollering for laws to compel all splendid conditions to become rapidly more so with less personal effort.

On all sides terrible agonies of fear are experienced by all adults

because possibly some one else will perhaps be unable to take care of own interests by using common sense which should be developed wherever shown to be present.

Laws are passed at rate to cause Henry Ford to make intensive study of Legislatures in hope of adopting process to Flivver Foundries to increase output.

What are several outstanding excrescences produced by sad & mistaken law making habits of U. S. A.?

Intense dust raised by Legislatures & Poison Gas spouted by those having large interests of great importance to themselves have tended to obscure ancient & honorable landmarks which have guided Human Species on rather troublesome journey of more years than Hon. Bryan was willing to talk about.

Principally as following:—

Nothing ever survives for long period except Truth & Results of Ability honestly exerted. Humanity has developed and increased in intelligence in exact proportion to dangers & obstacles needing to be overcome.

Complete protection from all dangers would presently result in population not worth it!

Mr. Average Human Being of today is product of long & terrible journey over age old trail presumably laid out by Great Engineer who knew approximately what he was undertaking.

Careful consideration should be given to all easy processes which seek to set aside ancient principles of rewards & punishments resulting from individual choice & judgment.

Requiring American Dentist with qualifications from States in center of U. S. to pass examinations adaptable for College Boys before delivering Dentistry on East or West Coast seems to Togo not American, not ethical, not reasonable.

Everyone makes himself a fool not once but several, but only wise man benefit and grow stronger from all such experience.

Hoping you are the same

Yours Considerably,

Togo.



## Some Fundamental Features Involved in the Evolution of the Human Skull and Dentition

By Joseph H. Kauffmann, D.D.S., New York, N. Y.

Dental Department, Bronx Hospital and Dispensary

### II.

Coming to the more intimate subject matter of our essay—the human dentition—we will first state three undisputed Darwinian genealogical deductions. At this point the writer wishes to express his indebtedness to the recent complete and brilliant paleontological research of Professor W. K. Gregory set forth in his volume on *The Evolution of the Human Dentition*.

1. Man is a member of the order Primates.
2. Man is an offshoot of the catarrhine or Old World division of apes and monkeys—not of the platyrrhine or New World.
3. Man is descended from some ancient members of the anthropomorphous sub-group of the catarrhine division.

As man has ascended in his later stages, the characters of the human dentition have doubtless been influenced by changes in upright posture assumed by his immediate ancestors. These variations in posture have been brought about by changes in the environment surrounding the ascending species. The earliest evidence shows that man was never quadruped but had extremities especially adapted to function in leaping and climbing.

The main stages showing the co-evolution of the locomotor apparatus and human dentition are here arbitrarily and briefly set forth.

*Stage 1.* Primitive jawless fish of Silurian Age represented by *Birkenia*; fish-like habits, but without fins and merely suctional mouth and jaws containing no teeth. In this species the skin is covered with denticles.

*Stage 2.* Primitive Crossopterygian stage represented by a Devonian fish, *Osteolepis*; aquatic habits with pectoral and pelvic fins and fleshy axis supported by cartilage rods. Many of the teeth were sharply differentiated from mere denticles covering the margins and inner sides of jaws and roof of mouth.

*Stage 3.* Primitive reptilian stage represented by lizard-like animals of the Carboniferous, Permian and later ages, such as *Seymouria*. The body was propelled along the ground with four extremities. A short neck and large skull slightly bent upon vertebral column and elongated face with numerous simple teeth were present. Insectivorous or carnivorous food habits were indulged in by this species.

*Stage 4.* Primitive reptilian stage of later Permian Age represented by *Nycterosaurus* with lizard-like locomotion on land. Its

palate was braced by surrounding bones, temporal region perforate and the teeth conical and compressed with commencing differentiation. This type maintained insectivorous and carnivorous food habits.

*Stage 5.* Advanced Theridont stage; reptiles of the Triassic Age, such as Ictidopsis; the body raised off the ground in walking but elbows and knees were everted. Temporal fossa, zygomatic arch and dentition differentiated with deciduous and permanent sets as in man. A land-living species with carnivorous and insectivorous food habits.

*Stage 6.* Pre-tritubercular stage, as in Amphitherium of the Jurassic Age. The skeleton is unknown but probably has extremities. The skull is also not known, but the mandible has condylar and angular processes. Insectivorous food habits with the dental formula:

$$\begin{array}{cccc} 4 & 1 & 5 & 6 \\ I - C - P - M - \\ 4 & 1 & 5 & 6 \end{array}$$

*Stage 7.* Primitive Lemuroid stage of the lower Eocene, represented by Northarctus. This phase presents arboricolous habits, skeleton for leaping, climbing and perching in trees. The skull presents a primitive, elongated face. The food habits are insectivorous and frugivorous. The premolars and molars are specialized and the dental formula is:

$$\begin{array}{cccc} 2 & 1 & 4 & 3 \\ I - C - P - M - \\ 2 & 1 & 4 & 3 \end{array}$$

*Stage 8.* Pre-Catarrhine or super-tarsoid stage of the lower Oligocene Age of Egypt. The skeleton is lost but descendants have power of upright sitting, which encourages use of hands in manipulation of food. The cranium is carried at moderate angles to vertebral column. Optic and auditory portions are well developed with the body of the mandible, and the ascending ramus is not so broad as in the later members of the anthropoid-man series. This species had a mixed diet of fruits, insects and eggs. Incisors simple, cuspids small and not intended for defense or offense, and developed bicuspid and molars. Dental formula:

$$\begin{array}{cccc} 2 & 1 & 2 & 3 \\ I - C - P - M - \\ 2 & 1 & 2 & 3 \end{array}$$

*Stage 9.* Advanced pre-human Anthropoid, represented by Miocene Dryopithecus, of India and Europe. The general skeleton is missing, but jaws and isolated teeth have been found. These animals could "brachiate" or swing from branch to branch with the body suspended from the upraised arms. Power to sit upright and erect. Progression

on the ground was developed. The skull was sharply deflected on the vertebral column. In modern anthropoids the head is almost on top of the vertebral column, especially in sitting position. Locomotion is no longer primitively quadruped and the gibbon, chimpanzee and gorilla are able to balance the body from the hips. The point is that in this stage of locomotion or "brachiation" the break was made from quadruped progression to the adoption of bipedal habits.

The upper jaw was deepened obliquely forward and downward beneath the overgrowing frontal portion of the skull. The diet was mixed, including fruits and small animals. Central incisors not much enlarged, cuspids with pointed tip; premolars, bicuspid and upper molars of four cusps and lower with *Dryopithecus* pattern of five cusps. Dental formula:

$$\begin{array}{cccc} 2 & 1 & 2 & 3 \\ I - C - P - M - \\ 2 & 1 & 2 & 3 \end{array}$$

*Stage 10.* Human stage, represented by *Pithecanthropus* of Pliocene Age; Heidelberg race of Lower Pleistocene Age; "Mousterian" youth and, in the highest form, *Homo sapiens nordicus*. Man differs from other primates, but his origin need not be sought, according to Gregory, further back than the differentiation of anthropoids, "because the cumulative evidence of comparative anatomy shows that man is a specialized offshoot from the anthropoid stem, probably arising after the assumption of upright-sitting, of brachiation, and of more or less erect progression on the ground." *Man is related to but not descended from the ape.* He has arisen from an unknown species commonly termed the "missing link."

"The erect or semi-erect posture, together with the increasing use of the hands as such and correlated swelling of the brain, has conditioned or is associated with (a) the forward growth of the cranium and the deflection of the preputiary plane (Keith), (b) the forward growth of the upper part of the face, and (c) the reduction in size and retraction of the jaws and dentition beneath the overhanging nose and forehead, which is so characteristic of the higher races of man."

The skull and dentition of the advanced types of man exhibit the following adaptive characters:

1. Enormous expansion and deepening of the brain case.
2. Marked shortening of the face.
3. Reduction in size of the dentition.
4. Superior and inferior dental arches tending to be elliptical.
5. Cuspids not in much protrusion as compared with the remaining teeth.
6. Inferior bicuspid fully developed.

7. Fusion of the premaxillaries with the maxillaries.
8. Inferior maxilla with progressively protruding chin, with little semblance of the more remote symphyseal ledge.
9. Reduction of the supraorbital crest.
10. Extreme retraction of jaws beneath brain case.
11. Articular eminence of lower jaw small and strongly convex.
12. Glenoid fossa deep and more accentuated.
13. Weak zygomatic arch.
14. Mastoid processes large and prominent.
15. Tympanic plate abbreviated.
16. Carotid canal enlarged."

Dental formula:

$$\begin{array}{cccc} 2 & 1 & 2 & 3 \\ I - C - P - M - \\ 2 & 1 & 2 & 3 \end{array}$$

In reviewing the main stages in evolution of the human skull and dentition we note that changing environmental conditions have been co-existent with the changing anatomical features of those parts. In other words, adaptation to natural conditions has resulted in variation. However, quite often similarly parallel and resembling jaw and tooth forms spring up independently in many orders where there is no good reason. This cannot be explained, but it does prove that these changes are not solely dependent upon the mechanics of mastication. As one writer states, the conclusion must be that "modifications in dentition are in part the expression of heritable institutional factors concerning which we know nothing as yet."

Various dental anomalies occurring in man, such as super-numerary bicuspids, fourth molars, missing lateral incisors and third molars, can be regarded only as mutations not traceable back to other sources. They do not become persistent in the human line because in order to do so they would have to be linked or complementary. A modification of that kind unaccompanied by concomitant anatomical changes in skull and facial parts does not become dominant. Neither are these reversions, as there is no evidence that they existed in pre-human types. They are just abnormal variations.

Mendelism is not exhibited in teeth principally because we do not deal in human beings with pure types. As far as we know, there is no such thing as familial heredity in acquired characteristics of teeth and jaws in man, but there is, of course, that heredity of those features which are distinctive of the species as a whole. It seems to the writer that there is not much hope of influencing the germ plasm of human parents to aid in the reproduction of offspring with a well-balanced set of teeth obtained through artificial means alone. But

if we can stimulate sufficient numbers of the human race to maintain sound teeth through natural means, hope need not be abandoned. We may by gradual modification influence favorably the future of mankind by improving the type of denture in homo sapiens as a whole. Oral Hygiene in all its phases will help the progress of man and, since it can certainly do no harm, the propaganda of mouth cleanliness should be universally encouraged.

### BIBLIOGRAPHY

- Bolk, L.—*Problems of Human Dentition*.  
 Castle, W. E.—*Genetics and Eugenics*.  
 Chiavaro, A.—*Experimental Researches Upon the Physiological Morphology of the Upper Posterior Small Incisors of Rabbits*.  
 Crile, G. W.—*Man an Adaptive Mechanism*.  
 Darwin, C.—*Descent of Man, Origin of Species*.  
 De Vries, H.—*Species and Varieties, Their Origin by Mutation*.  
 Gregory, W. K.—*Facts and Theories of Evolution, With Special References to the Origin of Man. Evolution of the Human Dentition*.  
 Haeckel, E.—*History of Creation. Evolution of Man*.  
 Hrdlicka, A.—*Human Dentition and Teeth from the Evolutionary and Racial Standpoint*.  
 Huxley, T.—*Man's Place in Nature*.  
 Kellicott, W. E.—*General Embryology*.  
 Kellogg, V.—*Darwinism Today*.  
 Loey, W. A.—*Biology and Its Makers*.  
 McBride, W.—*Study of Heredity*.  
 Morgan, W.—*Experimental Zoology*.  
 Osborn, H. F.—*Evolution of Mammalian Molar Teeth to and from the Triangular Type*.  
 Todd, T. W.—*An Introduction to the Mammalian Dentition*.  
 Williams, J. L.—*A New Classification of Tooth Forms*.  
 Wilson, E. B.—*The Cell in Development and Inheritance*.  
 Woodruff, L. L.—*Foundations of Biology*.

110 East 54th Street.




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### Wanted—Fragments of Enamel

I am in need of specimens of enamel which are removed from the teeth in the ordinary excavation and dressing up of the cavity. I should like to have any dentist who would care to send me such fragments of enamel from the teeth of patients about whom he could give a fairly accurate history communicate with me so that I might send him a few vials and a questionnaire to be filled out with the specimens.

Moses Joel Eisenberg, D.M.D.

436 Warren Street,  
 Roxbury, Mass.



## A Consideration of the Structure of the Alveolar Process With Special Reference to the Principles Underlying its Surgery and Regeneration\*

By Hugh W. MacMillan, D.D.S., M.D., Cincinnati, Ohio

(This summary is neither official nor complete. It represents the impression made by the paper on one in the audience.)

About two hundred years ago John Hunter stated that the alveolar process should be regarded as belonging to the teeth rather than to the jaws. This conception has remained practically unchanged. The geographical boundaries of the alveolar process have never been defined.

It is important to study the process with regard to its structure, response to stimulation, and regeneration. If it proves to be practically identical in these particulars with true bone, the diagnosis, surgery and prosthetic replacements must be founded upon the same principles as for the other bones.

The author then defined the alveolar process as that part of the jaw bone which supports the teeth or their substitutes and is composed of compact and cancellous tissue arranged in its external contour and internal architecture to meet best the stress transmitted through mastication. All the causes, pathologic or otherwise, which affect the osseous system in general affect the structure of the alveolar process also.

The cancellous bone of which the interior of the process is composed is constructed in the strongest manner with the greatest economy of material to meet the forces of mastication.

There is a physiological law which accounts for most of the varying bone densities in dental radiographs. It is that the greater the stress, the thicker each of the trabeculae will be and the closer together they will be. Lack of use or disuse atrophy is marked by a greater space between the trabeculae. Such changes are not due to infection or inflammation. They are the result of physiological stimuli or the lack of it. Such changes are not pathological and should not be called "condensing osteitis." The significance of such a thickening of the cancellous tissue cannot be determined except by a careful diagnosis of the patient's masticating history.

The compact bone of the alveolar plates exhibits the same characteristics as other compact bones. Haversian systems are found clear up to the crest of these plates. When a tooth is extracted, the alveolus

\* The paper of which this is a brief summary was read before the First District Dental Society, New York, by the author on October 5, 1925, and will be published with illustrations in *The Journal of Dental Research*.

does not disappear in the sense that its buccal and lingual walls absorb; the disappearance is caused by the filling in of the sockets with bone which has gone through the same process as occurs in the healing of a fracture. This rebuilding takes place with materials derived from the alveolar border and lamina dura.

The operation specifically known as external alveolectomy violates every known law of bone regeneration:

- (1) The periosteal flap which is left does not form bone.
- (2) The operation removes the osteoblastic elements in the external plate and the interseptal process, which are the sources of the cells concerned in rebuilding the arch form.
- (3) By the removal of the interseptal bone and the buccal plate the lingual plate is left unsupported to bear masticating stress.
- (4) The cancellous tissue which remains does not possess the regenerating power of the lamina dura and the external plate which are removed during the operation.

This external alveolectomy technic is not to be confused with the commendable practice of smoothing up sharp spiculae or rough edges and the removal of other points of irritation not concerned with the regeneration process or the correction of markedly overhanging edges of bone or of alveolar deformities. The retention of bits of bone in contact with their periosteum is to be especially recommended.

That surgeon exercises the best surgical judgment who practices conservation for regeneration. Regeneration is more dependent upon the amount of bone remaining after the extraction than upon any other one factor.

The interalveolar plate technic which was described by the author is the result of McEwen's researches upon the growth of bone. It aims to prevent the removal of the alveolar process during extraction. When it cannot be done, the alveolar plate should be separated from the tooth with a chisel, leaving the surgically fractured alveolar fragments intact with the periosteum. This technic preserves the buccal and lingual walls for the support of the alveolar periosteum, which act as a matrix governing the form of the ridge. Infectious material in the periapical region should be removed with the same care and thoroughness and with conservation for regeneration as a guide.



## Discussion of Dr. R. H. Rose's Paper Entitled "The Relation of Nutrition to Preventive Dentistry"\*

By Milo Hellman, D.D.S., New York, N. Y.

The problem of food and other factors involved in tooth development is not quite so simple as one may be led to believe. From an objective point of view all that could be said about nutrition was well said. But there is also a subjective side to it. That is, how does the individual react to a feeding plan based on calories and vitamins alone? When such a view is considered, it is found that certain foods, though containing the necessary vitamins and yielding the required number of calories, may fail to furnish the needed pabulum. The reason is that they lack certain other elements. Gelatin and maize, for example, may be good protein food, yielding necessary heat units, but they are deficient in certain amino-acids—the building stones of proteins—which the body needs and is unable to synthesize. Emotional states are known to affect the internal secretion of certain organs and glands which are known to participate in the metabolism of certain food substances. Foodstuffs containing the necessary number of calories and the proper variety of vitamins may fail in effective nutrition because of adverse emotional states such as anger, fear, excitement, worry, hurry and the like. Certain idiosyncrasies are other conditions affecting nutrition. The same kind of protein may have a different effect on different individuals. By these instances, which are but a few examples of a large variety of factors entering into the nutritional complex, it may be realized how extensive and profound the problem of nutrition really is.

In his references to the teeth the essayist contends that because the bones and teeth are alike in composition, and because in this country we are not consuming the proper amount of lime with our food, there is an almost universal prevalence of dental caries. If this is so, why does not the quantity of lime taken prevent or cure rickets, which is a bone and tooth disturbance? It is quite well known that there is something else which is needed in the prevention and in the cure of rickets. That something else, the nature of which is not quite well known, is cod liver oil and the ultra-violet rays either of sunlight or of the mercury vapor lamp.

Also the knowledge "of races who did not use any special measures for preserving the teeth, such as we use today, who were practically

\* This paper appeared in the September and October, 1925, numbers of THE DENTAL DIGEST.

free from tooth troubles," may be questioned. The discovery of the Rhodesian skull certainly explodes this theory. The Rhodesian skull, belonging to one of the primitive ancestors of man, dating back many thousands of years, nevertheless shows the result of extensive ravages of caries. The teeth of certain Indian tribes recently discovered, which date back many thousands of years, show a surprising frequency of carious cavities. Also, investigations to which I shall refer later show that the assumption that primitive races were free from dental decay is based on no reliable proof.

However, it must be granted that to bring the problem of nutrition before a body of dentists is no simple task. And to do it successfully deserves a great deal of credit. The dentist of today is primarily concerned with reparative procedures. He is consequently more interested in the improvement of technic, in the conservation of energy and in the economy of time. The problem of nutrition must therefore be considered as of secondary importance in his daily practical activities. The practical dentist contends that his services to mankind depend little on the advice he may be able to offer on what to eat or what not to eat. This really is the duty of the physician. If the dentist is unable to treat the gums or roots of the teeth, insert a filling, make a bridge or construct a denture, there is little chance for him to earn a livelihood or occupy any notable position in his community. This is very true and pertinent in so far as repairing the damage done is concerned. But when the questions arise as to why such damage has occurred, and as to a possibility of preventing it, a different aspect of the situation may appear.

The problem of nutrition for the dentist is therefore not of practical value for the present but rather of scientific interest for the future. It has little to offer in return as actual compensation for the dentist, but has much of promise for the welfare of mankind. It ranks as one of the outstanding features in the science of prophylaxis or prevention. Viewing the situation from this aspect, it is evident that no amount of effort should be spared in the attempt to acquire an adequate knowledge of nutrition, because the great contribution that dentistry is as yet to make will depend to a large extent on such acquisition.

It must, however, be pointed out that, complicated as the general problem of nutrition appears, it becomes still more intricate when its relationship to the teeth is to be explained. There is an increasing realization today that conditions of all bony structures in the body may be profoundly involved by the nutrition of the organism during the period of most active growth and bodily development. Similarly, the same conditions will affect the teeth during their most active growth and development. Owing to their peculiarity in structure and period of development, the teeth of man are easily affected by conditions not

readily controlled. For example, the deciduous teeth, as you all are well aware, develop at a period long before birth. If the nutrition of the tissues involved in their development is disturbed, defective deciduous teeth will be the result. But nutrition at that time does not mean feeding the individual. It means, if anything, proper feeding, proper assimilation, proper elimination, proper rest, proper occupation, proper emotional conditions, proper internal secretion, and proper hygienic surroundings of the mother. In this instance it is the mother who must possess and who must furnish all these requirements, through her circulatory system, for the proper development of the deciduous teeth. Any disturbance in the interaction of all these conditions will bring about circumstances which confront the dentist in his daily practice.

The development of the permanent teeth is well under way at the time of birth, and the completion of many of the teeth occurs during the first year of life. This period is replete with new experiences for the individual. The change in the general environment and the change in the manner of nutrition work many hardships on the individual. The effect upon the teeth due to these changes can scarcely be estimated. In addition to these, the initiation of some and the changes in function of various organs and glands, especially those with internal secretion, can have a profound effect on tooth development. Thus, functional disturbances of such glands as the thyroid or parathyroid influence calcium metabolism, which in turn has a definite effect on tooth structure. Fleishman's experiments corroborate this. Also, general systemic disturbances affect the teeth. Rickets, for example, is due to a disturbance in calcium metabolism affecting mainly the muscles and bone. Its effect on tooth structure is quite definite. Tetany is another disturbance due to a like and well-known metabolic disturbance, but its effect is more on the nerve tissue. This also has a similar effect on tooth structure. Sunlight has a beneficial nutritional effect on bodily conditions, and they in turn on the teeth, despite the fact that it is not eatable at all. It has recently been shown that direct sunlight has a curative effect on experimental animals as well as on human beings. Thus, experimental animals afflicted with rickets, though fed on a rickets-producing diet, will be cured when exposed to the direct rays of the sun. The direct rays of a mercury vapor lamp have an effect similar to sunlight. The therapeutic value of sunlight or of the mercury vapor lamp is due to ultra-violet rays, but when these rays are passed through an ordinary window glass they lose their therapeutic value. Clothing also filters out the effective rays according to its texture and color. Black or densely woven material absorbs more of the effective rays than white or loosely woven material. Skin color may similarly filter out the effective rays. The prevalence of rickets among negroes

in New York may be associated with these phenomena. In an examination of two hundred (200) negro children recently, 33% showed enamel hypoplasia—characteristic of rickets in early infancy. The excessive skin pigmentation may be involved in this dystrophy. Thus, while the skin color of the negro may be protective in the tropical zone, it seems to be detrimental in the temperate zone.

The composition of the sun rays is not always the same. There is a marked seasonal variation. In the temperate zones the sunlight is richer in ultra-violet rays during the spring and summer than it is during the winter. Infants exposed to the sun rays showed a similar variation in the blood phosphates, rising in the spring and summer and falling in the winter. The seasonal variation indicates that the chemical constitution of the blood is not constant for all periods of the year. There is, therefore, a strong probability that climatic conditions, such as seasonal changes, may exert a pronounced influence on nutrition in general, and on the teeth in particular.

The effect of nutrition upon the teeth may also be demonstrated in a different manner. After birth, for instance, the process of tooth formation is as yet not completed. To assist in this process the infant should be efficiently fed. Breast-feeding is the natural way by which all infant mammals are fed. This seems to be very successful in the entire range of mammalian life. Man alone is trying to break away from it. The result is not satisfactory. The teeth come in as strong evidence of the inadequacy of artificial feeding. The ravages of caries are found to preponderate in the individuals who were artificially fed infants. Malocclusion is rampant in those who were brought up on the bottle—I mean, of course, the milk bottle. Of a thousand children examined who had malocclusion of the teeth, 80% were bottle-fed in infancy.

Also economic conditions, as has recently been learned, influence the physiological processes concerned in growth and development. Favorable economic conditions are advantageous; unfavorable, detrimental. Including under the term "economic conditions" such factors as afford good food, plenty of rest, wholesome recreation, hygienic conditions, comfort, pleasure and favorable occupation, it is shown that children brought up under advantageous circumstances are taller in stature and heavier in weight than those less fortunate. But owing to the digressions from the natural plan of feeding (most of them having been artificially fed infants) these children, although accelerated in growth, are retarded in development; that is, the process of teething is altered. They are retarded in erupting the deciduous teeth, retarded in shedding them, and retarded in erupting the permanent teeth. Also, the order or sequence of erupting and shedding the teeth is changed.



When they have developed their dentition, they show a very high frequency of malocclusion.

What the effect of these digressions may be on the longevity of the teeth is not known. An investigation of this question is up to the dentist. The dentist must yet be able to answer the question of what the average duration of man's teeth is or should be; i. e., at what age is man supposed to lose a certain tooth or at what age is he supposed to be normally toothless? A study of this sort may be found to be intimately correlated with food habits, with diseases or with both. There certainly are individuals who become toothless at a very early age, while others retain their teeth to extreme senility. Does nutrition stand in any causal relation to it?

There are many things in dentistry deserving careful investigation which are passed by as a matter of no concern. Take the question of receding gums as an instance. It is known that in children the gums cover a large part of the tooth crowns. As the individual grows older the extent of this diminishes. In old age the necks of the teeth become exposed. It would be considered abnormal to find the senile condition in children or the children's condition in the aged. But what is the normal condition in the two? In an examination of the children's mouths, moreover, it will be found that the amount of tooth crown covered by the gum will vary. The extent of exposure of the neck of the tooth in the aged will also vary. What is the normal in each? Has food habit any connection with this variability? If so, is it the character of the food or the manner of chewing it? These are questions that should interest the dentist, because upon the answer to them would depend the diagnosis of any digression from the normal which has as yet not been definitely established.

To test the probable result of investigations of this kind, I examined 108 skulls at the *American Museum of Natural History* with the aim in view of determining a similar question. The skulls used were of Eskimos, Australian Aborigines, East Indians and American Indians. These races were picked out because of their contrasting food-habits. In all skull material the teeth show a considerable exposure of the roots at the neck. This exposure varies in different specimens and in the same specimen in the different teeth. To limit this investigation, the lower right central incisor root was selected in order to determine to what extent the root exposure will vary in the different specimens. For this purpose, measurements were taken from the gingival enamel margin to the rim of the alveolus. They were then divided into racial groups, which yielded an interesting assortment.

By an examination of these groups it became evident that the American Indian and Eskimo skulls present the smallest root exposure, while the Australian Aboriginal and the Hindu the largest.



Referring to the food habits of these it may be said that the American Indians are largely meat-eaters; the Eskimos, as is well known, rarely eat carbohydrates; the Hindus, on the other hand, subsist mainly on carbohydrates, while the Australian Aborigines are confronted with a scant food supply, which is variable but very coarse, causing tremendous wear of the teeth. It would seem that the meat-eaters with an abundant supply of it show a smaller exposure than do those with a limited food supply or those subsisting on a vegetarian regime.

Regarding decayed teeth it was found that of the Hindu skulls 43% had carious teeth, of the Australian 36%, of the American Indian 32%, and of the Eskimo 12.5% had carious teeth. This again shows that the Hindus, addicted to a carbohydrate diet, have the largest per cent of cavities. The Australians with a meager diet come next, the American Indians with a more varied and more abundant meat diet follow, while the Eskimos with an exclusive protein diet show the smallest per cent of decay. Malocclusion of the teeth appeared to the extent of 32% in the Hindus, 8% in the Australian Aborigines, 7% in the American Indians and 50% in the Eskimos. Here, curiously enough, it is shown that function will not prevent anomalous conditions. The Eskimos certainly use their jaws, and yet they show the highest frequency of malocclusion of the teeth.

Of course, the limited amount of material investigated would preclude any definite or final conclusions, but the results must nevertheless be considered as suggestive. A more extensive and more thorough investigation of this problem would undoubtedly yield results that would be not only interesting but very significant.

In conclusion, it may be stated that while the dentist is mainly concerned now with repairing the damages due to error or ignorance of the past, his aim at the present should be manifested by an ambition to correct such errors so as to obviate the occurrence of similar damage. In this manner the ideal involved in prophylaxis will be realized. By an intelligent understanding of the basic principles of nutrition and their effect upon the dentition a means is afforded that will bring the problem of healthy teeth in a healthy mouth a long way toward its solution.

40 East 41st Street



## The Better Dentistry Meeting

First District Dental Society, New York

OPEN TO ALL MEMBERS OF THE AMERICAN DENTAL ASSOCIATION  
DECEMBER 2, 1925 (2 P. M.), THROUGH DECEMBER 3 AND 4, 1925

This is preeminently a clinic meeting to offer practical instruction in up-to-date technic. Group and individual clinics begin when the meeting opens.

Addresses and clinics by authorities on subjects of practical importance to every dentist will be interspersed, as follows:

### *Organized Medicine,*

Wendell C. Phillips, M.D., New York, President of the  
American Medical Association

Some facts regarding the organization of the medical profession which are probably not generally known.

*Gold Foil*.....James Mark Prime, Omaha, Nebr.

An effort to bring gold foil back to its rightful place in dental work. Dr. Prime will also clinic.

*Nature's Plan in Anatomical Tooth Form,*

James Mark Prime, Omaha, Nebr.

A study of tooth form in relation to function.

*Amalgam Technic*.....William E. Harper, Chicago, Ill.

New factors that must be considered to perfect amalgam work. Dr. Harper will also clinic.

### *Dental Almagams,*

Wilmer Souder, Bureau of Standards, Washington, D. C.

An examination of various alloys by exact measurement. Factors which induce variations in the finished product.

*Some Phases of Dentistry*.....S. W. Foster, Atlanta, Ga.

This address will deal with some of the relations of constituent societies to the American Dental Association and is of interest to every society member.

*Prosthetic Dentistry*.....Dayton D. Campbell, Kansas City, Mo.

A review of recent researches in the field of full denture prosthesis. Dr. Campbell will also clinic.

This meeting is conducted by the Society without selling exhibit space to manufacturers. The lack of revenue from that source necessitates a charge for admission to the clinics.

A banquet will be held on Thursday evening, to be followed by dancing.

#### TOPIC QUESTIONS AND DISCUSSION

There is to be a session devoted to topic discussion at which a leader will be assigned to each topic. The leaders will be men who are recognized as authorities in their particular fields. The session will be like a clinic session, each in a group with chairs and a leader, and the leader will simply answer questions.

#### SESSIONS AND CLINICS AT HOTEL PENNSYLVANIA, NEW YORK CITY.

For further information address

E. M. DAVIES, *General Secretary*,  
250 West 57th Street, New York, N. Y.

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### Dental Clinics in the Philippines

An ambitious dental program for children in Philippine schools has been in operation under direction of the American Junior Red Cross since April, 1922, and its work forms an interesting phase of the constant campaign for health in that part of the world.

The work of the clinics is described by Mary Concannon, Director of Junior Red Cross for the Philippines Chapter, in a recent review of their operations. She writes:

"Membership in the Junior Red Cross of the Philippines Chapter calls both for service and for individual contribution to the service fund with 15 cents fixed as the maximum contribution. The present contributing membership includes more than 700,000 of the 1,000,000 average monthly attendance. The service fund finances a health program, which includes the distribution of toothbrushes, first aid cabinets and sanitary drinking jars and paper cups, together with the operation of 67 dental clinics in 39 of the 49 provinces and seven clinics in the city of Manila.

"The minimum cost of a clinic is estimated at \$1,500 a year. This covers medical supplies, transportation and salaries of the dentist and his helper. The clinic is moved through the provinces, reaching even the remote trails and across gulfs, by boat and horse. It visits both the remote village and the crowded municipality. The Red Cross flag hung from the window announces its arrival. And the dentist works rapidly, moved by the knowledge that many are called but few are chosen, and that his two hands can never meet all the needs.

"How great is that need is shown in the October, 1924, report, when 74 clinics reported 36,229 children inspected, with 69 per cent showing defective teeth. There were 20,187 extractions, mostly of roots and temporary teeth, 21,259 fillings were made, and 25,200 cleanings were given. Forty per cent of the children with defective teeth had full corrections made. Clinic hours conform to school hours, but the dentists gave an excess of 90 minutes daily, working an average of seven and a half hours.

"It is financially impossible for the Junior Red Cross to cover completely the dental needs of the children in the Filipino schools. Concentration is made, therefore, on reparative and prophylactic work. Class room instruction in mouth hygiene, class drills in the use of toothbrushes, distribution of brushes at cost prices, lectures on the value of the clean mouth whenever public gatherings or club meetings permit—all these are included in the educational phase of the work."

According to the review, no cases requiring long treatment, bridge or gold work can be treated. Adults may be treated in extreme emergency, but only when private care is not available. The Philippine Health Service, the only other organization providing dental treatment in the islands, has six dentists serving the general public. In many sections of the country the Junior Red Cross dentist is a pioneer in the field, and his clinic is crowded with curious adults, with the first young patient looked on as somewhat of an adventurer.

This is only a scant description of the full schedule of work by the clinics and also is only a representative part of the broad field of service, not alone of the Junior Red Cross but of the American Red Cross. The services of both cover many other varied fields at home and abroad. To assist in maintaining its activities, the American Red Cross each year from Armistice Day to Thanksgiving holds a Roll Call for members and renewal of old memberships.



# DENTAL LAWS

## Summary of Dental License Requirements Throughout the World

By Alphonso Irwin, D.D.S., Camden, N. J.

### PAPUA

Papua, or British New Guinea. Part of an island called New Guinea, located north of Australia. The estimated population, consisting largely of crude tribes, is 250,000. The area of Papua is 90,540 square miles. The interior of this great island has never been fully explored. It seems destined to become Australia's richest dependency, for its natural resources are very extensive. A dentist would find scant demand here for his services amongst the civilized population, but the *Missionary* dentist would find a vast field for cultivation. He could become useful beyond all human computation in the exercise of versatile talents. He would be hampered in his efforts to promote the welfare of these tribes more by *Bush* law than Civil law.

### PARA

Para is one of the Brazilian States. Foreign dentists desiring to practise at Para would have to have their diplomas legalized before a Brazilian Consular Officer in the district in which their colleges were situated and forward their documents to the Brazilian National Public Health Department at Rio de Janeiro for approval. In Brazil all laws and regulations governing dentistry are federal.

There is one dental college at Para, the Faculdade Livre de Odontologia, which is equiparada (made the equivalent of) the national institution in Rio de Janeiro, and graduates of this institution may obtain license to practise merely by forwarding their diplomas to Rio de Janeiro for registration.

Verified May 6th, 1925.

### PARAGUAY

Foreign dentists desiring to obtain permission to practise in Paraguay must present an application for examination, in writing, to the

National University (Universidad Nacional), accompanied by the diploma duly legalized by the Paraguayan Consul stationed in the country of which the applicant is a resident. The examinations are in Spanish and can be had at any time of the year. The fee charged for the examination and registration of the diploma is seven thousand Paraguayan paper pesos, or approximately (\$142.00) one hundred and forty-two dollars United States currency, at the present rate of exchange.

The theoretical examination given in Paraguay is arranged by the Rector of the University, and is based upon the examinations given at Harvard University. The practical examination consists of extractions with and without anesthetics; third and fourth grade treatments; fillings; inlays; porcelain work; crown and bridgework; gold plate and rubber work; and the use of dental apparatus. The examiners are named by the University, and consist of men recognized in the profession in Asuncion.

In order to practise in Paraguay after receiving his diploma duly registered after examination, the dentist must obtain a license from the Municipality of Asuncion every six months, but the registered diploma is valid for the life of the dentist. The municipal license at present costs 800 Paraguayan paper pesos or about \$16.00 United States currency.

The municipal license is valid in any part of the Republic. There are no reciprocity agreements inasmuch as there are no dental schools in Paraguay, but it is understood that dentists having a degree from a recognized university in Brazil, Uruguay, Argentina and Bolivia may practise their profession in this country without further examination. The municipal license is obligatory. Dr. Cecilio Baez is Rector of the Universidad Nacional, Asuncion, Paraguay.

Dentists are prohibited from selling dental supplies, medicines, tooth-washes, etc., in their establishments, and when a general anesthetic is given, the dentist is obliged to call in a medical doctor who will remain during the operation.

Verified July 10th, 1925.

### PARANA

Parana is a state of Brazil. In Brazil all laws and regulations governing dentistry are federal. See Brazil, also Para for the dental license regulations.

### PATAGONIA

Patagonia is a province of the Argentine Republic, the laws of which may be examined for the dental license requirements operative in the provinces. Patagonia is represented to be a wild, partially explored, sparsely settled country, inhabited by people of a roving and more or less predatory nature.

## PELEW ISLANDS

The Pelew Islands are under Japanese mandate. See Japan for colonial dental license regulations.

## PEMBA

This is a very fertile island, 380 square miles in area, located 30 miles northeast of Zanzibar, inhabited by Arab Moslems under British supervision and the Sultan of Zanzibar. No dental regulations enforced.

## PENNSYLVANIA, U. S. A.

Members of the Board of Dental Examiners: President, J. D. Whiteman, Mercer, Pa.; Dr. Alfred P. Lee, 1616 Locust Street, Philadelphia; Dr. Alexander H. Reynolds, Secretary, 4630 Chester Avenue, Philadelphia; Dr. S. B. Luckie, Chester, Pa.; Dr. J. D. Whiteman, Mercer; Dr. T. A. Hogan, Jenkins Building, Pittsburgh; Dr. W. A. McCreary, Highland Building, Pittsburgh.

The dental laws of Pennsylvania are dated 1876, 1883, 1893, 1897, 1907, 1915, 1917, March 19, 1921, May 5, 1921, April 1, 1925.

The English language, examination and registration are required; Dental-Council supervision.

June and December examinations are held in Philadelphia, Pittsburgh or Harrisburg, as announced prior to the meeting of the Board of Dental Examiners; fee for the examinations, \$25.00.

*Requirements:* Preliminary education, graduation from an accredited High School or its equivalent, certificate from the State Superintendent of Public Instruction. Professional training, graduation and diploma from a recognized dental college (Class A or B). Theoretical and written examinations upon subjects taught in a standard dental college. The practical tests are selected and announced by the Examiners prior to the meeting of the Board.

No reciprocity with any other State.

Registration with the County Clerk (Prothonotary of the Court of Common Pleas), within six months, otherwise the license will lapse. Annual registration with the Board's Secretary by January first, fee \$5.00.

Dental Hygienists examined, licensed and registered if successful in passing the required tests; examination fee \$10.00.

Secretary-Treasurer, A. H. Reynolds, 4630 Chester Ave., Philadelphia, Pa.

## TRANSCRIPTS FROM DENTAL LAWS OF PENNSYLVANIA

Section 2. The Dental Council shall have sole power to grant licenses to practise dentistry in this Commonwealth to any person who may be duly qualified under the provisions of this act.



The Dental Council shall also have sole power, after hearing before it, to revoke licenses to practise dentistry, if the accused shall have been guilty of malpractice or convicted of a felony or of violating the dental laws of this Commonwealth or shall be addicted to the use of narcotic drugs: Provided, That any person whose license shall have been revoked shall have the right of appeal to a court of competent jurisdiction.

Any person may present to the Dental Council a written application for a license to practise dentistry, together with a fee of twenty-five dollars, and with proof that he or she is not less than twenty-one years of age, is of good moral character, and has obtained a competent education, together with a diploma conferring upon him or her the degree of Doctor of Dental Surgery or other established dental degree from a reputable educational institution approved by the Dental Council, and maintaining a four years' course in dentistry, and with further proof that the applicant is not at the time under indictment for the violation of any act of Assembly regulating the practice of dentistry; thereupon the Dental Council may authorize the examination of such person by the State Board of Dental Examiners.

Upon receiving from the Board of Dental Examiners a report of the examination for license of any applicant who shall have been returned as having successfully passed said examination, the Dental Council shall issue to the applicant a license to practise dentistry in the State of Pennsylvania. Every license to practise dentistry issued pursuant to this act shall be subscribed by the officers of the Dental Council and by each Dental Examiner who reported the applicant as having successfully passed the examination such as is provided by this act, and said license shall be sealed with the seal of the Dental Council of the Commonwealth of Pennsylvania, and shall be recorded in a book to be kept in the office of the Dental Council, and the number of the book and page therein containing said record shall be noted upon said license.

Upon the recommendation of the Board of Dental Examiners, the Dental Council may also issue a license, upon the payment of a fee of twenty-five dollars, to any person who is of good moral character and who shall furnish proof that he or she has a license to practise dentistry granted by the dental council or other lawfully constituted authority of any other State or country where the preliminary and professional education required by law is equal to that of the laws provided by this Commonwealth.

The Dental Council may also license any applicant who has been in the actual lawful practise of dentistry for not less than ten years, upon the report of the Board of Dental Examiners that, after due investigation or examination, it finds his or her education and profes-

sional attainments and experience to be together fully equal to the requirements for license in this Commonwealth.

The Board of Dental Examiners shall keep a book of registration at the office of the Board, in which shall be registered the names and addresses of each person duly qualified under existing laws or who may hereafter become qualified to conduct the practice of dentistry in Pennsylvania.

And it shall be the duty of all persons now qualified and engaged in the practice of dentistry, or who shall hereafter be licensed by the Dental Council to engage in such practice in this Commonwealth, to be registered with the said Board of Dental Examiners as practitioners on or before the first day of January, one thousand nine hundred and twenty-two, and thereafter to register with said Board of Dental Examiners in like manner annually on or before the first day of January of each succeeding year. The form and method of such registration shall be provided for by the said Board of Dental Examiners in such manner as will enable the Dental Examining Board to carry into effect the purposes of this act.

Each person so registering with the Board of Dental Examiners shall pay, for each annual registration and for the certificate hereinafter provided, a fee of one dollar, which sum shall accompany the application for such registration. The money thus received shall be used by the Board of Dental Examiners for the purpose of carrying into effect the provisions of this act against unlicensed and unregistered practitioners and for such other purposes, connected with the duties of said Board, as it shall deem necessary and advisable.

Upon receiving a proper application for such registration, accompanied by the fee above provided, the said Board of Dental Examiners shall issue its certificate of registration to the applicant entitled to registration, upon which shall be noted the number of the book and the page therein containing the record of such registration. Said certificate, together with its renewals, shall be good and sufficient evidence of registration under the provisions of this act.

#### EXAMINATIONS

Section 4. For the purpose of examining applicants for license, the State Board of Dental Examiners shall hold two stated meetings each and every year, to wit: one in June and one in December. The June meetings shall be held simultaneously in Philadelphia and Pittsburgh. The December meetings shall be held simultaneously in Philadelphia and Pittsburgh or, in the discretion of the Board, may be in Harrisburg.

Special meetings may be held, the time and place to be fixed by said Board. Due notice of all meetings shall be given. At stated and special meetings, a majority of the Board shall constitute a quorum

thereof, but the examinations may be conducted by a committee of one or more of the examiners duly authorized by the said Board.

All candidates for examination for license to practise dentistry in the State of Pennsylvania shall be required to pass an examination by the State Board of Dental Examiners upon the following subjects: First, general anatomy and physiology; second, special dental anatomy; third, dental histology; fourth, dental physiology; fifth, chemistry and metallurgy; sixth, materia medica; seventh, dental pathology, bacteriology, and therapeutics; eighth, anesthesia; ninth, oral surgery; tenth, principles and practice of operative and prosthetic dentistry.

Said examination shall be conducted in writing, and shall embrace all the subjects named in this act. Each applicant shall also furnish to the Board of Dental Examiners satisfactory evidence of his or her proficiency in the manipulative procedures of dentistry, either by producing an example of his or her work with proof of the execution of the same, or by a practical demonstration of his or her skill in the presence of the examiner. After each stated examination, an official report, signed by the president and secretary and each acting member of the said Board of Dental Examiners, stating the examination average of each candidate in each branch, the general average, and the results of the examination, whether successful or unsuccessful, shall be transmitted to the Dental Council. The said report shall embrace all the examination papers, questions, and answers thereto. All such examination papers shall be filed by the Dental Council, at Harrisburg, and kept for reference and inspection for a period of not less than five years.

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SUPPLEMENT TO THE DENTAL LAW OF PENNSYLVANIA PROVIDING FOR  
THE LICENSING OF DENTAL HYGIENISTS

Approved March 17, 1921

A *Supplement* to an act approved the seventh day of May one thousand nine hundred and seven (Pamphlet Laws one hundred and sixty-one) entitled "An Act Regulating and Defining the Powers and Duties of the Dental Council of the State Board of Dental Examiners providing for appointment of examiners, Defining Qualifications of Applicants for Examination, Condition of Granting Licenses, Regulating and Limiting the Practice of Dentistry, Prohibiting Practice by or Employment of Unlicensed Persons and Providing Punishment therefor, and Disposition of Fees and Fines and Fixing the Appropriation to the Dental Council." Providing for the Licensing of Assistants to Dentists.

Section 1. Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met and it is hereby enacted by the authority of the same that a legally qualified and licensed practitioner of dentistry in the State of Pennsylvania may employ a legally qualified and licensed assistant or assistants as hereinafter provided for, which assistants shall be known as dental hygienists. The dental hygienist may remove all tartar deposits, accretions and stains from the exposed surfaces of the teeth and directly beneath the free margins of the gums, but shall not perform any other operation on the teeth or mouth or on any diseased tissues of the mouth. The dental hygienist may operate in public or private institutions, such as schools, hospitals, orphan asylums, and sanitariums, under the general supervision of a licensed and qualified dentist, but not otherwise, or in the office of a duly qualified and licensed dentist, only after he or she shall have been registered with the Board of Dental Examiners as hereinafter provided.

Section 2. The Dental Council may suspend or revoke, with power to reinstate, the license of any registered dentist who shall permit any dental hygienist operating under his general supervision to perform any operation other than that permitted by this act, and it may also suspend or revoke, with power of reinstatement, the license of any registered dental hygienist violating the provisions of this act.

Section 3. Any person not less than nineteen years of age, of good moral character, who has satisfactorily completed a four-year high school course, or its equivalent, as approved by the Bureau of Professional Education of this Commonwealth, and upon presentation of a certificate or diploma from a chartered and reputable dental educational institution or a chartered and reputable school for the training of dental hygienists, recognized as of good repute by the Dental Council of Pennsylvania, certifying that the holder thereof has successfully pursued in such an institution a course of instruction extending over a period of one academic year, consisting of not less than thirty-two weeks, in subjects approved by the Dental Council as essential to the proper education and training of a dental hygienist, upon payment of ten dollars (\$10.00) and upon the presentation of satisfactory certificates as to character and education, may be examined by the Board of Dental Examiners under the conditions and regulations prescribed in section four of this act for the conduct of examinations and recording the results thereof of candidates for the license to practise dentistry in Pennsylvania in subjects deemed essential by the Dental Council for the proper training of a dental hygienist. The results of the examination of persons provided for in this section shall be transmitted to the Dental Council as provided in section four of this act, and upon receiving from the Board of Dental Examiners a report of the examinations for license

of any applicant who shall have been returned as having successfully passed said examinations, the Dental Council shall issue to such applicant a license to practise as a dental hygienist in the State of Pennsylvania.

Section 4. Any person practising as a dental hygienist in the State of Pennsylvania shall cause his or her license to be recorded in the office of the Prothonotary of the Court of Common Pleas of the county in which said dental hygienist shall practise, and any dental hygienist who shall neglect to cause his or her license to be so recorded shall be construed as practising as a dental hygienist without license. Upon the presentation of a license to practise as a dental hygienist in this Commonwealth and an affidavit that the holder has served as a dental hygienist for a period of at least eight months in a public or private institution as above specified, a dental hygienist is entitled to be registered with the Board of Dental Examiners, and shall then be known as a registered dental hygienist. Only registered dental hygienists may be lawfully employed by a dentist as assistants in private dental offices.

Section 5. It shall be the duty of all registered dental hygienists who engage in such practise in this Commonwealth to be registered annually with the Board of Dental Examiners on or before the first day of January of each succeeding year. The form, method, and registration fee shall be similar in all respects to those provided by law for the annual registration of dentists.

Section 6. The Dental Council, upon the recommendation of the Board of Dental Examiners, may issue a license, upon the payment of a fee of ten dollars, to any person who is of good moral character and who shall furnish proof that he or she has a license to practise as a dental hygienist granted by the lawfully constituted authority of any other state or county where the educational qualification required by law is equal to that provided by the laws of this Commonwealth, and any person so licensed shall be entitled to register with the Board of Dental Examiners if and when he or she presents an affidavit of having served as a dental hygienist in a public or private institution for a period of at least eight months.

Section 7. It shall be unlawful for a licensed and registered dentist to employ a dental hygienist as an assistant in a private dental office until he or she has become registered with the Board of Dental Examiners, after having served at least eight months as a dental hygienist in a public or private institution, such as schools, hospitals, orphan asylums and sanitariums.

Section 8. Any unlicensed person who shall perform any of the operations specified in this section as pertaining to the work of a dental

hygienist shall be deemed to be practising dentistry within the meaning of the act to which this is a supplement, and shall be subject to the penalties provided in section eight of said act for such unlicensed practice.

Section 9. Nothing in this act shall interfere with the power of the Commissioner of Health to employ, or cause to be employed, in public health work, persons who have taken a practical course in keeping the teeth clean and the gums healthy, and who have been adjudged prepared for this work by the Chief of the Division of Dental Health.



## PRACTICAL HINTS

This department is in charge of V. C. Smedley, D.D.S., and George R. Warner, M.D., D.D.S., 610 California Building, Denver, Colorado. To avoid unnecessary delay, Hints, Questions and Answers should be sent direct to them.

NOTE—Mention of proprietary articles by name in the text pages of the DENTAL DIGEST is contrary to the policy of the magazine. Contribution containing names of proprietary articles will be altered in accordance with this rule. This Department is conducted for readers of the DENTAL DIGEST, and the Editor has no time to answer communications "not for publication." Please enclose stamp if you desire a reply by letter.

There are so many calls for the prescription for the treatment of Vincent's Angina, that we find it necessary to publish it again for the benefit of readers.

Peroxide of Hydrogen .....	10 oz.
Wine of Ipecac .....	6 drams
Glycerine .....	10 drams
Fowler's Solution .....	10 drams
Aqua Puræ qs.....	16 oz.
M. et Sig.	

Use with a very strong spray. Give the patient some for home use. This is used in the atomizer with heavy air pressure once or twice daily until the most acute condition is overcome. It is then used on alternate days until the normal condition of the gums has returned. After the first acute condition is over the teeth are thoroughly scaled and polished.

Positive results are obtained in most cases in twenty-four hours, and in all cases in not to exceed two or three days. The patient is given a bottle of this solution with instructions to wash the mouth with it three times daily until a cure is effected.

(Signed) G. R. WARNER.

### *Editor Practical Hints:*

Please send me the formula for the alcohol used in Trifacial neuralgia, also the amount. I understand that the injection is very painful and must be made under anesthesia, general or local.



In caring for young children's teeth, what is best for the patient when the child has badly-infected exposed pulps in the first permanent molars, before the second permanent molars have erupted?

Another case: A boy with both upper and lower cuspids crowded out of alignment with all four first molars badly broken down and with exposed pulps; parents unable to have orthodontia work done. Would the cuspids have room if the first permanent molars were extracted, or would the second molars tilt forward and fill the space?

Dr. Smedley, I want to thank you and Dr. Warner for the Practical Hints department of THE DENTAL DIGEST. It is a department I have found very helpful to me personally, and I know others who have benefited by it.

G. P. W.

ANSWER.—Eighty per cent grain alcohol is used in the injection for trifacial neuralgia, and from one to two c.c. is used. The injection is painful and an anesthetic should be used. A complete description of the technique is given in Brophy's Oral Surgery.

The opinion is extending among thoughtful, conservative practitioners that first permanent molars with exposed infected pulps ought to be extracted as long before the eruption of the second permanent molars as a diagnosis of such a condition can be made. In the majority of cases the second permanent molars will erupt in nearly normal position in the socket of the first molars. If the first molars are removed too late to attain this desirable result, regulating appliances will quite easily accomplish it.

In the case of the boy with the cuspids in labial occlusion or position: The probabilities are that the removal of the diseased first molars would result in at least a partial correction of the labial position of the cuspids. The age would be one factor, the occlusion another, and the habits of the boy still another. If the boy is a mouth breather the cuspids would not be apt to come down into place.—G. R. WARNER.

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*Editor Practical Hints:*

I have a woman patient, age twenty-eight, who complains of a slight pain during mastication and even when opening the mouth a short distance. Patient locates pain as being slightly back of the cheek on the ramus of the mandible about an inch below the temporo-mandibular joint. It seems to appear in the masseter muscle when it is stretched when the mouth is opened. She gives a history of having had a lower third molar extracted on that side under infiltration anesthesia about a year and a half ago. Pain appeared about six months later, and has persisted ever since. I wish to thank you for any information or advice you may give.

G. M. F.

ANSWER.—There are several possibilities in the case of your patient who has pain during masticating and opening the mouth. The thing one thinks of first is a subluxation of the temporo-mandibular joint, due to a dislocation at some previous time and a possible destruction of the eminentia articularis of this joint. There is not very much to be done for these cases except to caution the patient to refrain from yawning or opening the mouth too wide for any reason. Patients sometimes improve with this care. There is another possibility, and that is a fracture of the ramus. We had a patient some two years ago who gave a history of discomfort following an operation of much the same character as that you describe in the case of your patient. A radiogram disclosed a fracture of the ramus just below notch. Therefore a good extra-oral plate or two would be indicated in this case in aiding a diagnosis.—G. R. WARNER.

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*Editor Practical Hints:*

I often meet up with a bad case of excess growth of gum tissue, growing down between the teeth. This little point of gum tissue is highly inflamed and bleeds very freely. My treatment for it has been to scale the adjoining teeth, clean them thoroughly and then cut off this excess growth. But in a great number of cases it comes right back again in a short time. I am having a number of these cases right now, and I thought perhaps you could tell me how to prevent them from growing back right away. An electric cautery might do the work but I don't have one. Is there any drug or preparation that would stop this growth from coming back? If you could give me some advice I would greatly appreciate it.

C. B. Mc.

ANSWER.—The excess growth of gum tissue of which you speak is, in all probability, a simple hypertrophy, although its continuing to return after treatment would point to malignancy. However, as malignancy of the septal tissues of the gums is very rare it is probably safe to assume that your cases are simple hypertrophies. Your plan of treatment is right, because they are usually, if not always, caused by irritation and the removal of the irritation should result in a disappearance of the hypertrophy and it should not return. I would suggest, therefore, that you select one or two cases and some two or three areas on each case and treat those with the scalers and polishing instruments time and time again until you surely have every bit of irritating material removed and have the patients brush the teeth vigorously by sweeping the brush down on the upper and up on the lower jaw at least five minutes every day. I believe you will overcome your trouble in this way, at least that has been my experience after having spent nearly fifteen years with the major portion of my time devoted

to periodontoclasia. If there is irritating material underneath the gums no drug or preparation will prevent the hypertrophy, although tri-chloroacetic acid will relieve it temporarily.

I should be pleased to hear as to the result of this intensive treatment.—G. R. WARNER.

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*Editor Practical Hints:*

I have a patient, male, 34, and very rheumatic. Great pains in his hands and feet. He is unable to work. His physician advised that he have his teeth put in order. An X-ray showed only slight pyorrhea and two non-vital bicuspid.

The bicuspid were removed and the pyorrhea treated. His rheumatic condition is no better after two months, but the thing I wish you could help me with is a condition existing on the patient's face. It involves all of the upper and lower lips, both cheeks and the chin. It is not a pain but as near as the patient can describe it, it is a numbness, and he likens it to the sensation he feels when his "foot goes to sleep!"

He never had any block anesthetic. There are no impacted teeth. The condition bothers him only when he touches his face, otherwise he is not conscious of it. Any advice on its diagnosis and treatment will be appreciated.

J. R.

ANSWER.—Your patient has a disturbance of function of the fifth nerve and apparently in or close to the gasserian ganglion. The condition which you describe is a paresthesia; this can come from either a growth at or near the ganglion or from a toxic condition of the nerve due to infection. The simplest thing to do in such a case is to clear up all infection first, and it might be well to check carefully over his mouth again for any other pulpless teeth or infection from periodontoclasia. The matter of paranasal sinuses should be looked into, because infection here might affect the fifth nerve. I take it for granted that his physician has looked into the matter of infected tonsils and toxemia from malnutrition or unbalanced diet.

Trust that some of these suggestions may aid you in clearing up this case.—G. R. WARNER.

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*Editor Practical Hints:*

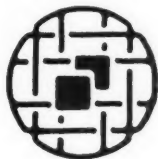
Will you kindly give me a little information on the following case: Patient male, age between 38 and 40. Good health, weight 181 lbs. I have made some stationary bridge work some seven months ago, using

22-K gold for crowns, 24-K for cusps on bridges and 20-K solder. After three or four weeks patient returned showing me all his bridges and also two gold inlays (22-K gold) discolored to almost an iron black. I cleaned them and polished them all up, put him on a diet, and after four weeks the bridges were in as bad a state as after he returned the first time.

Any information you could give me will be greatly appreciated.

C. W. Z.

ANSWER.—Since receiving your letter I have consulted a good many dentists and have looked through text-books on operative dentistry for help in your problem. I have had gold fillings tarnish and have been unable to account for it on any other basis than that of the secretions of the mouth. I used to imagine that this was due to eating eggs, owing to the common experience of having silver spoons tarnish with which eggs were eaten. It seems to be the opinion of other men that this tarnishing of metal in the mouth is due to a sulphide, but what causes the excess of sulphide or the releasing of it is an unsolvable problem. One man suggests electrolysis as a possible cause, and of course we know that a gold filling in proximity to an amalgam filling will sometimes cause darkening of both fillings. I personally am of the opinion that you are on the right track in the matter of diet, and that possibly diet hasn't been persisted in long enough to give the desired result. I personally should be glad of suggestions from any one who reads this and has anything of value to offer—G. R. WARNER.



## CORRESPONDENCE

Jackson, Tenn.

*Editor Dental Digest:*

This "youngest patient" contest that the boys have on in THE DIGEST reminds me of three small boys who were telling of their earliest remembrance. First one said he could remember that at six months his mother took him to have his picture made. Second one said he could remember when he was born, 'cause there was no one home 'cept himself and his grandmother. Third boy said, "Shucks, that ain't nothing, I 'member when God said, 'Stand up Johnnie and get your eyes put in'."

T. J. KIMBROUGH

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Brooklyn, N. Y.

*Editor Dental Digest:*

I wish to report to THE DIGEST readers what I believe to be a very rare case.

Patient, female, aged 60 years. Born in Italy, and illiterate. Height about 5 ft. 5 in. Weight about 175 lbs. Called for oral examination. This is what was found. Full upper and lower teeth, including all wisdoms, in perfect condition. Not a single cavity and not a single filling in any of them. Gums hard, and every tooth as firm as a rock.

Only pathology I could find was slight recession and redness at gingival margins, due to collection of tartar.

Patient stated she had never visited a dentist before, and had never cleaned her teeth in her life.

For a 60-year-old woman I believe hers to be a rare case, and I should like to hear of others who may have come across patients with mouths to equal hers, with perhaps an explanation for her unusual immunity in this period of dental troubles.

JAY ROSTEN, D.D.S.

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Pratt, Kansas

*Editor Dental Digest:*

In the July number of THE DENTAL DIGEST J. W. B. asks if there are any left-handed dentists.

Replying through the columns of THE DIGEST, I shall have to plead

guilty to being one, although I do not do all work strictly left-handed. I might put myself in the class called ambidextrous. I was naturally left-handed in almost everything I did, but when I went to dental college I was compelled to work right-handed. When I got out into practice, I began the use of my left hand for certain operations and developed it along that line until I work with almost equal facility with either hand. I handle the work right-handed on the right and left lowers, and on the right uppers. But when it comes to operating on the teeth on the left upper quarter of the mouth, that is always done left-handed and from the left side of the chair. This method of operating for the left uppers I find a very great advantage to me, often giving me direct vision where it would be otherwise from the right side of the chair; or if not that, I am able to get close to my work and still stand out of my own light, which I could not do so well if I were working on the opposite side from where I was standing.

In extracting I am able to use one hand as well as the other and thus extract from either side of the chair according to which tooth it is; also to change forceps, using uppers below and lowers above—any way that comes handy. There are many little things I do strictly left-handed, such as using a knife.

One great difference it makes in the arrangement of my office is in the position of the cabinet, which is placed crosswise directly behind the chair. I am thus enabled to reach it with whichever hand is the free one, depending on the side of the chair from which I am operating. One thing it does for me is that it spoils me for using any of the new-fangled units, as it would be impossible to stand between the chair and the cuspidor on the left side.

As to the impression made on patients, I have small opportunity to know. I know this about right-handed people that anything done by a left-handed person appears awkward to them, while a person who uses both hands sees nothing out of the ordinary about another, no matter which way it is done.

C. E. DOTY

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*Editor Dental Digest:*

When J. W. B. wanted to know if there were any left-handed dentists, it brought forth a smile! I was made that way myself, although ambidextrous in many things. We southpaws are not soliciting any sympathy, I assure you.

I operate from either side of the chair to suit my convenience. All extracting must be done left-handed. My position is on the left side of the chair for all but teeth on the lower right side; then I change to the right.

The cuspidor is in the way, although I've been able to keep out of

it! Its position at times is bad, but doesn't by any means equal the awkwardness of the right-handed brother who reaches across his patient to perform the same operation. I've had few comments from patients. It's generally possible with a little effort to keep their minds off such trivial details as to which hand I use in extracting their teeth!

After twenty-five years' attention to this subject, I feel quite satisfied that no patient knows or cares which hand was used—and most of them are not sure but that a foot might have been brought into the operation.

Seriously, each has an advantage over the other in some cases. One patient during my school days did say if she had known I was left-handed, I could not have extracted her tooth, although everything else was all right.

I wouldn't be changed into an ordinary, common, right-handed man for anything. Just think—it's my one point of distinction! Although I didn't earn it, I have the honor and am going to hold fast to what I possess.

E. R. Z.

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Edgerton, Minn.

*Editor Dental Digest:*

I am enclosing an unusual or a freak lower first molar. I am very



glad they are not all like this one.

J. S. EMERY

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The following story from a Delaware dentist (name known, but withheld) shows what one dentist thinks of dentistry as a profession compared with medicine.—EDITOR.

*Editor Dental Digest:*

I have a friend, a physician and surgeon, whom I see daily during



lunch hour, quite frequently see him perform major operations, and at off hours often go with him on his general practice cases.

The other day he stated that he had about thirty-five patients in during the evening and collected \$2.00. Later I went with him on a call and when he came out he said that it was about the fortieth time and not a dollar yet. It was in a fair section too.

Another day he drove quite a distance and collected nothing, and the woman asked him to wait so that she might bring in several neighbors for free advice.

He gets paid for about one operation in five and, judging from results, I have no doubt that he is as good as the best in town.

In the night time if a night call is necessary he uses a taxi costing from \$1.25 to \$2.00, as he does not care to go after his own car.

This man is about the most generous and popular man I have ever known, but it seems pretty expensive. He admits that the selfishness of the human race is somewhat trying.

The other day, after seeing him perform a cancer operation, I said, "Doctor, dentistry seems like a pretty small proposition after seeing work like that." He said "Yes, it is amusing to hear some of the dentists rave about extracting an imbedded tooth." Compared with medicine, the long hours, free work, etc., we do have quite an easy time of it.

Sometimes I have extracted some unerupted teeth that seem pretty difficult to me, and after making some remark he usually says, "That's nothing."

Comparatively, he is correct.

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Morgantown, Ky.

*Editor DENTAL DIGEST:*

I noticed in the July DIGEST that you were asking if there were any left-handed dentists.

I am the "fortunate one" of twenty years' practice. I run the engine backward, have the instrument bracket on the left, the arm rest changed from the left to the right side, the cabinet on the left and use all instruments in the left hand. Patients say, "When that left hand gets hold of a tooth, it's sure to come!"

B. V. CRITTENDEN.

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Buttonwood, R. I.

*Editor DENTAL DIGEST:*

The late Dr. Luther D. Shepherd of Boston, Mass., was left-handed. In his day a better operator, executive, educator, or professional gentleman did not exist in New England.

F. G. EDDY.

# DENTAL SECRETARIES and ASSISTANTS

## Secretaries' Questionnaire

All questions and communications should be addressed to Elsie Pierce, care of THE DENTAL DIGEST, 220 West 42nd Street, New York City.

### MY IMPRESSIONS OF A NATIONAL MEETING OF DENTAL ASSISTANTS

During September, at Louisville, Kentucky, I enjoyed the opportunity of attending the first annual session of the American Dental Assistants Association, the national association of dental assistants which was organized at Dallas, Texas, in November, 1924, and whose meetings were held at the same time as the annual meeting of the American Dental Association.

Having registered as a guest at the headquarters of the American Dental Assistants Association, and since my program stated that the first meeting of the House of Delegates would convene at 9 a. m. on Tuesday, September 22, 1925, I made my way to the Red Room of the Hotel Seelbach at the appointed hour and was ushered into a room full of alert, enthusiastic young women waiting for the call to order. The conduct of that session and of the others which I attended on subsequent days was a revelation. In a gracious but businesslike manner the presiding officer proceeded through the order of the day in correct parliamentary form. Reports of officers and committees were concisely and interestingly given and we learned that over one hundred dental assistants had registered from practically every State in the Union. A short program followed the business session, and we listened to an interesting address by a prominent member of the dental profession, dean of a Western college of dentistry, and to two essays by members of the American Dental Assistants Association, both of which showed splendid knowledge of the subjects presented.

The first General Meeting was scheduled for the afternoon at two o'clock. Same room, same interested audience, augmented to an overflow of standees. The president, having announced that the dental assistants were striving to become better dental assistants and that good dental assistants were good citizens, called for the Pledge to the Flag as the first order on the program. An address of welcome followed

by a prominent dentist of Louisville, the response to which by the first vice-president was a beautiful expression of appreciation for the hospitality extended to the Association by those in charge of the dental convention. Two inspiring papers by members, several short addresses by well-known dentists and the president's address made up the program. The president's address pictured the outstanding watchwords of Education, Efficiency, Loyalty and Service as the four cornerstones in the foundation of a temple for dental assistants which embodies their ideals, their purposes and their work.

Having determined not to miss a single session of this interesting convention, nine o'clock on Wednesday morning found me again in the Red Room of the Hotel Seelbach, where I witnessed another well-ordered session, heard several splendid addresses by members of the dental profession and two papers by members. Here let me say that the program disclosed that the members giving essays and papers were each one from a different State, showing that ability and versatility among dental assistants is general and not confined to one State or society.

The afternoon of this day was devoted to clinics, demonstrating what dental assistants can do when efficient in their service to the dentist and patient. Capable dental assistants in natty white uniforms were on hand to explain any or all of the many methods, materials, accessories, etc., displayed, all of them the work of dental assistants. These clinics are the visual demonstration of the indispensability of dental assistants, yet it is my understanding that there are dental offices without an assistant and, stranger still, intelligent people patronize these offices.

On Thursday morning officers for the coming year were nominated and elected, final reports were given and officers installed. At the close of this meeting I attended the annual luncheon. Approximately one hundred and fifty dental assistants and friends had subscribed to this very pleasant feature of the meeting. The president of the American Dental Association and other ranking officers honored the Association by their presence. Two prominent dentists well known for their musical ability dispensed entertainment, the speeches were brief and inspiring, and a spirit of enthusiasm and good fellowship prevailed.

My impressions of this first meeting of the American Dental Assistants Association I shall long remember. The desire for greater education for a greater efficiency in service was the dominating factor in all the activities as attested by a resolution passed by the House of Delegates on Tuesday morning, September 22, 1925, petitioning the recognized dental schools for the establishing of departments for the training of dental assistants.

We who have had close association with the profession of dentistry

recognize that a dental assistant should be capable and well trained and so we heartily commend this new association and its purpose. The enthusiasm manifested throughout, the earnestness of purpose displayed, the high ideals expressed, the well-ordered sessions and the personality of dignity and culture of the members, were outstanding and apparent to all. I only regret that every dental assistant in the country was not present. However, they can participate in the constructive work and reap the benefits through membership.

I am already looking forward to the next meeting of the American Dental Assistants Association, which is scheduled for August, 1926, at Philadelphia.

ELSIE PIERCE.

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## The Necessity for a Trained Assistant in the Practice of Oral Surgery\*

By Marion Gruelle, Indianapolis, Ind.

The dental assistant has proved her usefulness to the dental profession. Office management, laboratory work, x-ray work, contact with patients, all come within her field, but in no other branch of the work is the dental assistant so indispensable as in the field of oral surgery. It is just as ridiculous to think of a general surgeon operating without a nurse as for a dentist to attempt oral surgery without a competent assistant.

There are three classifications of work that come under the general head of dental surgery. The first is simple extraction, which needs little discussion. The second is minor oral surgery, which includes the removal of infected teeth and necrotic bone, impacted teeth, tumors and malignant growths, and alveolectomy, gum resection and antrum surgery. Fractures sometimes come within this group and sometimes are to be classed with major surgery. The hospital is seldom indicated in minor oral surgery unless the patient is a child who must have a general anesthetic or an adult who is mentally defective or who is otherwise a hospital case. The third classification, major oral surgery, including cleft palate, hare lip, the more extensive malignant growths and some fractures, usually is, properly, hospital work. The procedure in the hospital is necessarily entirely different from that employed in the office, and, as this branch of work is one we seldom encounter, it is not worth while to go into it here.

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\* Read before the Indiana State Association of Dental Assistants, May, 1925.

The field of minor oral surgery is one of the most interesting phases, as well as the most exacting phase, of our work. In a well-regulated office accuracy and precision are indispensable. A poorly conducted office means a waste of time, strength and money; a poorly managed laboratory means a duplication of effort in making over work that has come out imperfect; but none of these things can compare in seriousness with the dire consequences which may follow carelessness or incompetence in the surgery. In this work, as in no other, teamwork is of inestimable value. The assistant should know the technic to be employed from the beginning of the operation to the end. This knowledge can be acquired only by study of the operator's methods and by close application to the case at hand. In a short time the assistant *who enjoys her work* can tell what instrument the doctor will want next, sometimes even before he is conscious that he will use it.

The first requirement for this work is complete equipment for sterilizing and a thorough working knowledge of its use. This means a still, an autoclave, a means of boiling instruments, a receptacle for sterile water, one for normal salt solution and a good antiseptic solution. All towels, gauze, applicators, sponges, gowns, etc., must be sterilized in live steam under pressure. All instruments must be boiled or put through the steam sterilizer. The boiling is preferable because it requires less time; but the edged instruments, as lances, chisels and scissors, are dulled by boiling. These may be sterilized in an antiseptic solution, if desired. All anesthetic solutions are made from water redistilled fresh daily. All syringes and needles are boiled before each operation, and the iridio-platinum needle is heated red hot in the flame of the alcohol lamp before each insertion in the tissues. The towels, gauze, sponges, etc., are prepared for sterilizing in packages containing enough material for one patient. If rubber gloves are used, they can be boiled or run through the autoclave.

In a practice confined to surgery two assistants are almost essential, as the assistant at the chair has all she can do to prepare for the case, assist through it, clean up and get ready for the next patient. The doctor's time and skill are his stock in trade and are too valuable to be wasted in waiting. Where this work is done by the doctor in general practice who has only one assistant, most of the preparation before operating and the cleaning up afterward can be done while the doctor is busy with other work.

In this discussion I shall consider only nerve-blocking anesthesia, as we never employ a general anesthetic in the office. In a majority of the cases of minor oral surgery a general anesthetic is contraindicated. Nerve-blocking with a procain-adrenalin solution is the safest anesthesia known. The patient is conscious and is able to render assistance during the operation. Mouth props, tongue forceps and packing of the

faucis can be dispensed with. The adrenalin lessens the bleeding in the local field, while any general anesthetic raises the blood pressure, thus inducing hemorrhage. The duration of anesthesia with blocking is usually an hour and a half and can be prolonged if necessary, allowing ample time for any minor surgery, while with nitrous oxide or ether the work must be performed in as short a time as possible to minimize the amount of anesthetic agent administered. The field of operation can be kept cleaner with nerve-blocking, and, all other things being equal, the post-operative pain is greatly lessened and in many cases is entirely eliminated. In addition to these arguments, a general anesthetic in the hands of an unskilled person is a very dangerous thing.

The subject we are to consider is the necessity for a trained assistant in the practice of oral surgery. The best argument for such trained assistance is a glimpse of an office where it is not available. At our ring the doctor comes to the door, wearing a harassed expression, and bids us come in. As he is busy, we may look about a bit. There is an extraction patient in the chair. The washbowl contains the bloody instruments from the last case, which the doctor hasn't had time to wash. The boiler contains some forceps and elevators he used an hour ago, but hasn't had time to take out. The telephone rings—he must answer it, wash his hands and go back to the chair. The doorbell rings—he must answer it, wash his hands and return to his patient. The next patient comes, and the doctor isn't ready. At the last view of the office the aspirator is clogged, the patient is ill, and the doctor is a nervous wreck. It is not possible to describe the proper practice of surgery in this office because it cannot be done by one person.

The only way to get through the day in such an office would be to have all the equipment for sterilizing—the enlightened public knows enough to demand that—but not to use it. It takes only a moment to wash the blood off the instruments, lay them back in an orderly row for the next case and pour prepared solution from the drug store out of a bottle. The men who use these methods, however, are not practicing surgery. They have slipped back to the times when the only dentist known was the barber.

In contrast, let us look into another office where a competent young woman is in charge. A patient is coming to have an impacted tooth removed. Her x-ray is hanging in front of a light, where the operator can see it without even turning his head. The water is redistilled and dissolving cup, graduate, syringes and needles boiled just before time for the patient to arrive. When the patient is announced, the solution is made and the patient ushered into the office. Let us suppose this lady is a new patient and the methods of this office are new to her, so she comes in with fear and trembling. She has not had a tooth extracted since the days of cocain anesthesia, when extracting was so



often accompanied by excruciating pain, and though she has been told that progressive methods and scientific nerve-blocking have superseded the ancient ways, she still doubts. When the assistant meets her at the door with a smile, the girl's calm, confident manner makes the lady wonder if it is going to be as serious an operation as she has anticipated. While she is removing her wraps, she will probably let fall some remark about how frightened she is or how much she dreads the work. The tactful assistant will assure her that she is not to be subjected to any pain and that she will be surprised to find how comfortably she will come through the operation. The assistant's manner toward her patient should always be governed by the temperament of the particular patient. She could no more treat all the people alike who come to her office for professional services than the doctor could do the same piece of work for each one. This is one of the greatest pleasures of this work. Each person who presents requires a different method of approach, and there is no monotony where the human element enters.

During our digression the assistant has placed the patient in the chair and adjusted it to her comfort. Her dress is covered with a large linen bib, her hair covered with a sterile cap and a sterile napkin given her with which to wipe her mouth. Her mouth is then sprayed with an antiseptic solution, and her face washed with 60% alcohol. Then she is ready for the doctor. While he is making his nerve-blocking injections, the assistant fills the sterile receptacle with normal salt solution at a temperature of 110° to 120° F. The glass tip is placed in the aspirator, and a last inspection made of instrument and work tables to see if anything has been overlooked. Then comes the final scrubbing up, and the work begins.

The competent assistant never lets her attention wander from the patient. While the doctor is engrossed in his work, the assistant must watch him, help him, anticipate his needs, and at the same time watch the patient for any indications of pain, discomfort, illness or nervous strain. If she detects any of these, she must communicate that fact to the doctor, without the patient's knowledge, and institute corrective procedure. When an incision is made in soft tissue, there will be slight hemorrhage for a few minutes. This requires constant use of the aspirator until the bleeding has stopped. If bone must be removed, the aspirator will take out the particles as fast as they are cut off with chisel or cutting instrument. There is no excuse for the accumulation of blood or saliva in the patient's mouth, or for debris, such as bits of bone, filling material, cement, etc., in the tooth socket, if your office equipment includes an aspirator.

When the tooth is removed, the socket is irrigated with the warm saline solution which is withdrawn with the aspirator and the wound is painted with a mild antiseptic. If the wound is to be sutured or



packed, the materials for these steps are ready at hand, and they are handed to the operator just when he is ready for them. When the operation is completed, a folded square of sterile gauze is placed over the socket, and the patient is instructed to close her teeth on it for two or three minutes until a blood clot forms. Then the assistant removes the patient's wrappings, gives her careful directions about home care, sees that her face is free from traces of the work and escorts her to the dressing room. An appointment is then made for the next visit, the fee collected, and the patient dismissed. An entry is then made on day book or card, and the assistant is ready to clean up the surgery.

Where two assistants are employed, the one at the chair need never leave the surgery, unless the patient is ill or requires her attention for some particular purpose. While she gives the patient her directions for home treatment, the second assistant can be removing the instruments, washing them and dropping them in the sterilizer. As soon as the patient leaves the room, the chair assistant proceeds directly to the preparation of trays and anesthetic solution for the next patient, who is waiting, with the result that, with duplicate instruments, seldom more than a few minutes elapse between surgical cases. A dentist with a trained assistant can render four times as much service in a given time as a dentist working alone.

To make the most of her possibilities in this field, the assistant must school herself in patience, perseverance and unremitting attention to detail. She must see and sense, with eyes, ears, and mind, all that takes place about her, with the doctor and the patient as subjects. She must adhere rigidly to the principles of asepsis and remember always that a failure in any minute detail of her work means a result that is unworthy of the office that is hers to work for, as well as her employer's. The gratitude of the patient, the appreciation of the dentist and, above all, the consciousness that she is doing well her work in the world make it worth while.

311 Bankers Trust Bldg.

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### **Educational and Efficiency Society for Dental Assistants, First District, New York**

At the November meeting of the Educational and Efficiency Society to be held at the Academy of Medicine on Tuesday, November 10, 1925, at 8 p. m., the essayist of the evening will be Dr. John Oppie McCall. There will be also a prominent woman speaker.

The Educational and Efficiency Club opened the new season on

September 14, 1925, at the office of Dr. W. Short, 342 Madison Avenue, New York, with Agnes F. MacNeil, Acting Director, presiding. Plans for the coming year were discussed and invitations from several State and local dental societies were placed before the Club. It is the purpose of the members of the Club to demonstrate by means of clinics the many useful services which the alert and capable dental assistant can perform in the dental office to be of more assistance to both the dentist and the patient. In presenting these clinics before dental societies and groups of dental assistants, the clinicians explain fully each detail of the work of the young woman in the dental office, an education to both clinician and observer. At each meeting of the Club, held regularly on the third Monday evening of each month, at 7.30 p. m., from September to May, inclusive, at the office of Dr. Short, 342 Madison Avenue, a different phase of the work of the dental assistant is shown. All members of the Society are eligible for membership and are urged to join.

The Society, through the Clinic Club, furnished the Chair Assistance, Sterilization and Orthodontic Assistance demonstrations in a Group Clinic given at the first annual meeting of the American Dental Assistants Association at Louisville, Kentucky, on September 23, 1925.

The classes to be conducted by the Society during the coming season are now being formed and will include instruction in Secretarial Duties, X-Ray Assistance, Care of Equipment, Sterilization, Parliamentary Procedure, First Aid, Chair Assistance, Laboratory Assistance and Gold Casting. These classes are free of charge and members of the Society in good standing are eligible to attend.





## EXTRACTIONS



No Literature can have a long continuance if not diversified with humor—ADDISON

The good die young—no matter how long they live.

(Stranger)—Do you have to see a doctor in this town before you can get some booze?

(Native)—No, afterwards.

A good way to preserve your teeth is to avoid serious arguments with large men who have red hair.

(Bunsen)—How would you classify a telephone girl? Is hers a business or a profession?

(Jepson)—Neither: It's a calling.

The statistics man puts it this way: "A million years of intellectual growth, resulting in a flapper who wonders if her nose is shiny!"

(Ima Dodo)—Dorothy is not very clever, is she? The cakes she served at yesterday's tea were as hard as rocks.

(Mrs. Omigracious)—Of course she's clever! Her husband is a dentist.

There is a man in Atlanta, Ga., who is 108 years old. He never touched whisky as a beverage, but says that in his youth it was so plentiful he frequently used it to bathe his feet in.

Among the men who never attend class reunions at the school of experience are those who received their diplomas at grade crossings.

"The melancholy days are here" for those who still recall  
Their all too ancient history, when six or eight was all  
We ever had to pay to get a ton of fuel in!

"When the frost was on the punkin"  
Then the coal was in the bin!

A distinguished writer was asked who was the most popular man in N. Y. City. He said, "The man who spends his winter in California and his summer in Europe. That relieves the traffic."

(Father)—Why is it, Johnnie, that you are always at the bottom of the class?

(Johnnie)—Aw, it doesn't make any difference, Dad; they teach the same thing at both ends.

Willie Rose sat on a tack.  
Willie rose.

The King of Spain attended a brick-layer's wedding. Now he is sure to be charged with toadying to the rich.

(Patient)—But, doctor, I have a very bad cough and I must get rid of it right away. It interferes with my business.

(Doctor)—Nonsense, you only think so. Coughing can't interfere with your work.

(Patient)—But it does. I'm a burglar.

The fellow who used to do cross-word puzzles is now trying to figure out the French debt plan.

The ideal life, we fancy, is that of a hitherto starved native mosquito along the east coast of Florida.

### FIGURATIVELY SPEAKING

To illustrate the infinitesimal size of an atom, Professor Niels Bohr told a meeting of Scandinavian Mathematicians that to count the atoms contained in one cubic centimeter of air, all the peoples of the earth, white and colored, would have to count for more than 1,000 years and then their task would not be finished.

(Sign in a Chicago Restaurant)—Don't be afraid to ask for credit. Our refusal will be polite.

How is Florida going to laugh off the fact that California won first and second place in the National Beauty Show!

A Congressman expressed himself as follows after the adjournment of the last Congress at Washington: "We passed nearly five thousand laws, all favorably considered, all made the law of the land, and they are now ready to be violated."

(At the grade crossing)—Say it with brakes—and save the flowers.

(Harry)—Wonder why so many men sing while taking a bath?

(George)—I know why I do—the bath room door won't lock.

# DIETETICS and HEALTH

## Aid to Longer Life

In the past twenty-five years more has been accomplished in medicine than in all the centuries before. Scientific medicine has done about all it can for the mass diseases, now practically gone, but which used to frighten and destroy the people by tens of thousands.

In the fourteenth century fifty million people died of the plague. There was only one way of escaping it, and that was for people to leave their homes and run away to places free from it. In the eighteenth century many millions, probably one hundred millions, died of nothing but smallpox.

Today each man is dying his individual death, according to Dr. Charles H. Mayo, of Rochester, Minn., and it is up to us to see if we cannot reach him in some manner and persuade him that it is worth while, when he is still vigorous, to learn to keep his machinery from going to pieces from neglect.

In the sixteenth century, man had but twenty years of average life. It is fifty-eight today, and you wonder whether you will be able to reach the three score and ten of the Bible. We hope to be able to do that from a medical standpoint within the next few years.

It is coming. We know it is coming. Our problem is advancing the age of our people by teaching men, women and children the art of keeping well. There are thousands of deaths annually, which, with reasonable precaution, could be prevented. This means that society is not availing itself of the medical knowledge already at its disposal. Of the 3,000,000 people on the nation's sick list every day, one-fourth to one-third are needlessly so.

To combat this unnecessary suffering and waste of human resources, to induce better health and longer lives, a campaign of health education such as is now being undertaken by the Gorgas Memorial Institute is of the highest value.

An important phase of the work is the periodic health examination, the only known way of discovering certain incipient diseases before the individual realizes anything is wrong. In the beginning, Bright's disease, apoplexy, and high blood pressure are usually symptomless to

their victim. But discovered in time and the advice of the family doctor followed out, you are put on the road to recovery before your vital organs are wrecked beyond repair. Take as good care of your health as you would of your automobile and have your vital structures tested yearly to locate the enemy of your health.

A second vital function, which is truly preventive medicine, is teaching the individual the ill effects of wrong habits of living, which if continued, will lead to illness. Improper eating, and getting insufficient exercise each day are among them.

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## A Perfect Salad

Among many of the interesting things set down in the "Recollections" of the late Thomas R. Marshall—who was Vice-President—there is found instructions for making a perfect salad, or a "Hoosier Salad," as he quaintly termed it:

"To make a perfect salad there should be a spendthrift for oil, a miser for vinegar, a wise man for salt and a madcap to stir it up."

The dedication of Mr. Marshall's book is as follows:

"To the two women who were uninjured in the Fall of Eden, my Mother and my Wife, I lovingly dedicate this book."

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## The Value of Good Lung Tissue

One of the facts that your school teacher got into your head was that the lungs took waste matter, carbon dioxide, from the blood, and pure matter, oxygen into the blood.

This seems important enough, because any stoppage of the breathing for just a few minutes results in death.

However, our research men are never satisfied, says Dr. J. W. Barton in the *N. Y. Evening Telegram*, and they now tell us that in addition to doing this wonderful service to keep the blood pure the lungs have an action on the fats in the blood, somewhat similar to the action of the digestive juices on the fats in the food.

The lung tissue destroys fats and breaks them up into other products. They found, also, that lung tissue acted on the protein sugar in the blood also, as the blood coming to the lungs was richer in sugar than the blood coming from the lungs.

The point is that the lungs appear to do more than exchange the carbon dioxide for oxygen; that they are, in fact, just large glands

also, doing work similar to that of the liver, pancreas or other glands of the body.

One of their experiments was to inject some lung tissue into the veins of animals, and it was found that both the fat and the sugar in the blood were thereby reduced in amount.

Now that we are learning that the lung tissue has an influence on the fats and sugars which produce energy and maintain body weight, the real value of good lung tissue can be readily appreciated. The only way that you can develop real lung tissue is by exercise—preferably in the open air, of course. The simplest exercise is a good brisk walk that will make you just “puff” a little as you complete it.

Slow running is even more valuable, or stationary running by an open window, where age and circumstances will permit it. This means that real effort creates an actual need of air, and is, therefore, much better than what are called “breathing” exercises.

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### And That's That!

The man whose life is sedentary, who spends it in a padded chair, should be aloof and also chary when he confronts the bill of fare; stewed humming bird or baked canary is better far than roast beef rare. One thing the doctors are agreed on; we eat too much, they all protest; the rich and gaudy things we feed on convey us to eternal rest; the undertaker draws a bead on the man who eats with fiery zest. We listen to the doctors' warning; they speak the truth, we wot and wist; we promise that to-morrow morning we'll cut the rich things from the list; to-day a fine roast is adorning the menu and we can't resist. The next day, when we should be framing such pledges as the docs advise, the cook comes to us, proudly naming a string of roasts and soups and pies. “Next week, perhaps,” we're heard exclaiming, “we'll follow up that counsel wise.” And presently we're feeling seedy, our vitals do not function right; we are too fat or else too weedy, our symptoms fill our hearts with fright; the doctors say: “You're so blamed greedy you've got yourselves in grievous plight. How often have we sawbones told you that eating is a deadly trick, unless the toilers' clothes enfold you, unless you swing the sledge or pick; you boobs would eat, and now, behold you—you're wobbly on your pins and sick!” They scare us stiff, and for a season we live, like hermits, on a crust, without a slice of meat or cheese on, or decent drink to lay the dust, until we shriek: “Though it be treason, we'll eat a good square meal or bust!”

WALT MASON

## EXTRACT FROM A LETTER

"I have just received the beautiful copy of 'The Life and Work of J. Leon Williams,' and I am hastening to assure you of my great joy in having it, and to congratulate you on its splendid consummation. Rarely has it been given to a single being to have such unusual excellence of achievement in even one branch of science, such as Dr. Williams has enjoyed in many branches."

### STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS, OF AUGUST 24, 1912

OF THE DENTAL DIGEST  
at New York, N. Y.

State of New York, } ss.:  
County of New York, }

Published monthly  
for October 1, 1925

Before me, a Notary Public in and for the State and county aforesaid, personally appeared John R. Sheppard, who, having been duly sworn according to law, deposes and says that he is the Secretary of the Dentists' Supply Co., Publishers of THE DENTAL DIGEST, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are:

NAME OF	POST OFFICE ADDRESS
Publisher, THE DENTISTS' SUPPLY COMPANY	220 West 42nd St., New York, N. Y.
Editor, GEORGE WOOD CLAPP	New Rochelle, N. Y.
Managing Editor, GEORGE WOOD CLAPP	New Rochelle, N. Y.
Business Manager, L. W. DUNHAM	New Rochelle, N. Y.
2. That the owners are:	
THE DENTISTS' SUPPLY COMPANY	220 West 42nd St., New York, N. Y.
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AUGUST WIENAND	Sprendlingen, Kreis Offenbach, Germany
FRITZ WIENAND	Sprendlingen, Kreis Offenbach, Germany

DE TREY & CO., LTD., is a corporation organized under the laws of England, with an authorized capital stock of 2,000,000 shares of One Pound each, ownership of which is scattered over a considerable part of Europe and includes a long list of names unknown to us, and probably a number of banks and other corporations.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

THE DENTISTS' SUPPLY COMPANY.

J. R. SHEPPARD, Sec'y & Treas.

Sworn to and subscribed before me this 29th day of September, 1925.

[SEAL]

EMELIE S. SCHOFF

Notary Public, Westchester County

Certificate filed in N. Y. County

Clerk's No. 565; Register's No. 7523—My commission expires March 30, 1927.



## FUTURE EVENTS

The next examination of the PENNSYLVANIA STATE DENTAL COUNCIL AND EXAMINING BOARD will be held in Philadelphia and Pittsburgh on Wednesday to Saturday, December 2-5, 1925. The examination in theory will be held at the Civil Service rooms in City Hall, Philadelphia, and at the University of Pittsburgh, Pittsburgh. The examination in practical work will be held at Temple University, Philadelphia, and at the University of Pittsburgh, Pittsburgh, on Saturday, December 5, beginning at 8:30 A. M.

An examination for hygienists will be held at the same time and places. Application papers may be secured from the Department of Public Instruction, Harrisburg. For further information address the secretary,

ALEXANDER H. REYNOLDS,  
4630 Chester Avenue, Philadelphia, Pa.

The next examination by the BOARD OF DENTAL EXAMINERS OF CALIFORNIA will be held in San Francisco on December 5, 1925. All credentials must be in the Secretary's hands by November 10th.

Dental hygienists will be examined on December 5, 1925, and their credentials also must be in by November 10th.

Further information may be obtained from Dr. O. E. Jackson, Secretary, 155 Kentucky Street, Petaluma, California.

THE IOWA STATE BOARD OF DENTAL EXAMINERS will meet at the State University of Iowa College of Dentistry, Iowa City, Iowa, December 7-10, 1925, at 9:00 A. M., for the purpose of examining applicants for a license to practise dentistry in Iowa. An examination for dental hygienists will also be given. All papers and credentials must be filed with the department at least fifteen days prior to date of examination. For further information and application blanks, address the State Department of Health, Capitol Building, Des Moines, Iowa.

The fifty-sixth annual meeting of the NEW JERSEY STATE DENTAL SOCIETY will be held at the Stacy-Trent Hotel, Trenton, N. J., Wednesday, Thursday, Friday, Saturday, April 14-17, 1926.

R. S. HOPKINS, *Director of Exhibits*,  
913 Broad St., Newark, N. J.

F. K. HEAZELTON, *Secretary*,  
223 East Hanover St., Trenton, N. J.

The annual meeting of the DENTAL PROTECTIVE ASSOCIATION OF THE UNITED STATES will be held at the Palmer House, State and Monroe Streets, Chicago, on the third Monday of December, the 21st, at 4 P. M. sharp. The report of the officers will be given, a Board of Directors will be elected, and such other business transacted as should come before the Association.

All members are urgently requested to be present.

By order of Board of Directors,

J. G. REID, *President*,

D. M. GALLIE, *Vice-President and Treasurer*,

E. W. ELLIOT, *Secretary*.

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The annual meeting of the MASSACHUSETTS STATE DENTAL SOCIETY will be held at the Copley Plaza Hotel, Boston, Mass., May 3-7, 1926.

HAROLD W. ALDEN, *President*,

160 Main St., Northampton, Mass.

WILLIAM H. GILPATRICK, *Secretary*,

358 Commonwealth Ave., Boston, Mass.

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#### CHICAGO DENTAL SOCIETY'S ANNUAL MEETING AND CLINIC

January 27-29, 1926—Drake Hotel

The sixty-second annual meeting and clinic of the CHICAGO DENTAL SOCIETY will be held at the Drake Hotel, Chicago, January 27, 28, 29, 1926. The plans for this meeting have been perfected and contemplate the establishment of a new mark in program-building. That the 1926 meeting will excel all previous records of this Society is witnessed by the following facts:

1. There will appear on the literary program 256 men to present papers, addresses and discussion in the ten different sections, at two noon-day luncheons and the two big general session meetings.

2. Two one-half days will be devoted to clinics, Thursday afternoon and Friday morning. The clinic program will consist of seven types, as follows:

- (a) Progressive Clinics.
- (b) Lecture Clinics.
- (c) Section Clinics.
- (d) Junior Clinics.
- (e) Table and Chair Clinics.
- (f) Study Club Clinics.
- (g) Senior Student Clinics.

There will be a total of 200 clinics, 100 to be given each half-day.

3. The President of the American Dental Association, Dr. Sheppard W. Foster, and Mrs. Foster will be the guests of honor at a banquet which will be standing by a program of dancing and entertainment.

Railroad rates have been secured for this annual meeting.

A special invitation is extended to all members of the American Dental Association and to dentists living in foreign countries who are members in good standing of their national societies.

Hotel reservations should be made immediately direct with the hotels.

We are gratified to announce to the profession that Dr. Otto U. King, General Secretary of the American Dental Association, is Chairman of the Program Committee.

M. M. PRINTZ, *President*,

HUGO G. FISHER, *Secretary*.